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In cooperation with
Mississippi Agricultural
and Forestry Experiment Station

Soil Survey of Rankin County, Mississippi

HOW TO USE

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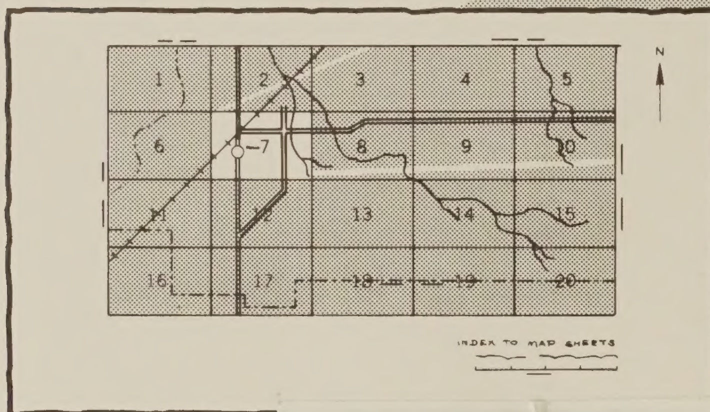

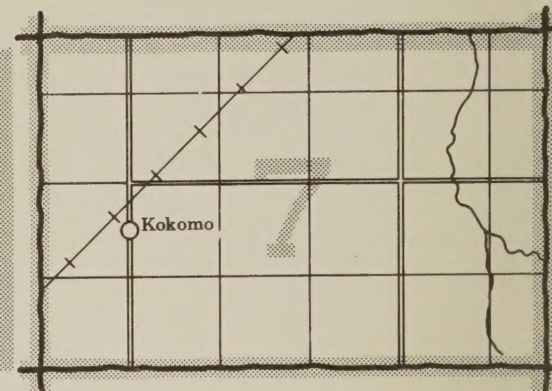

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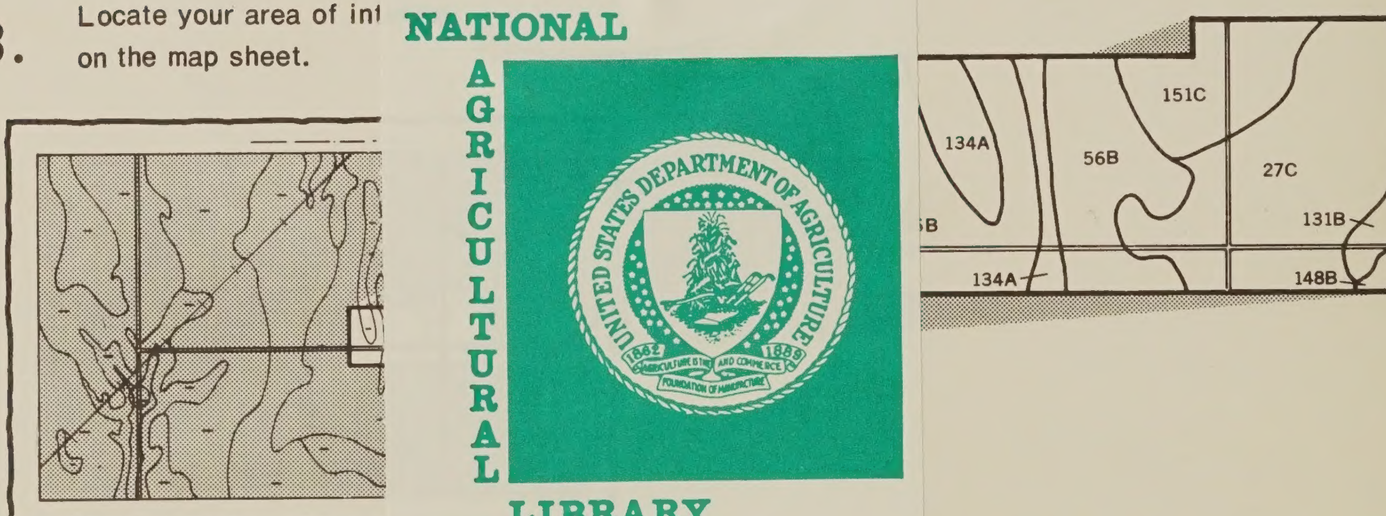
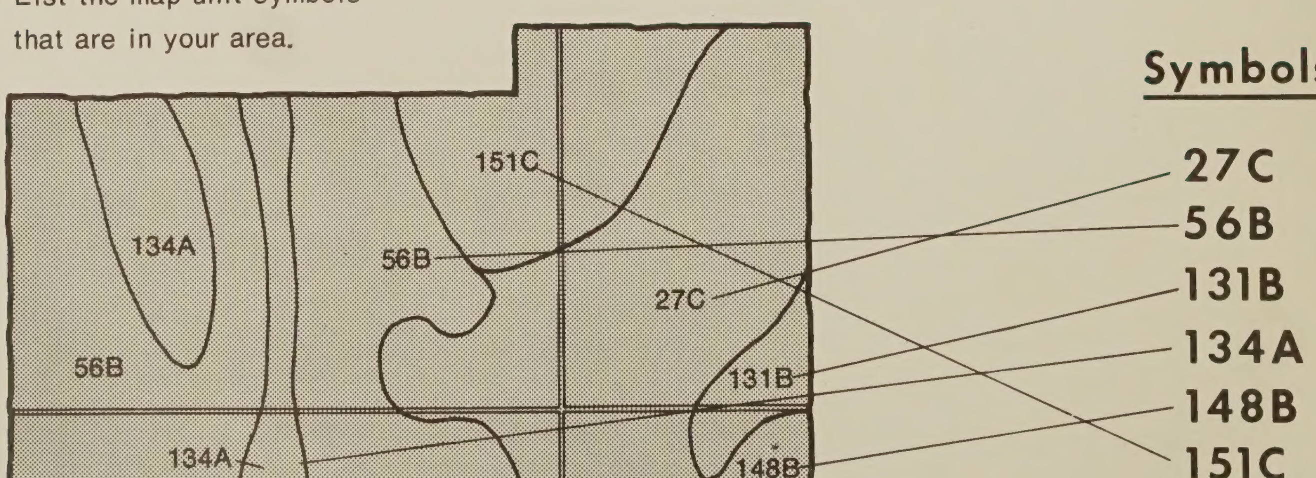
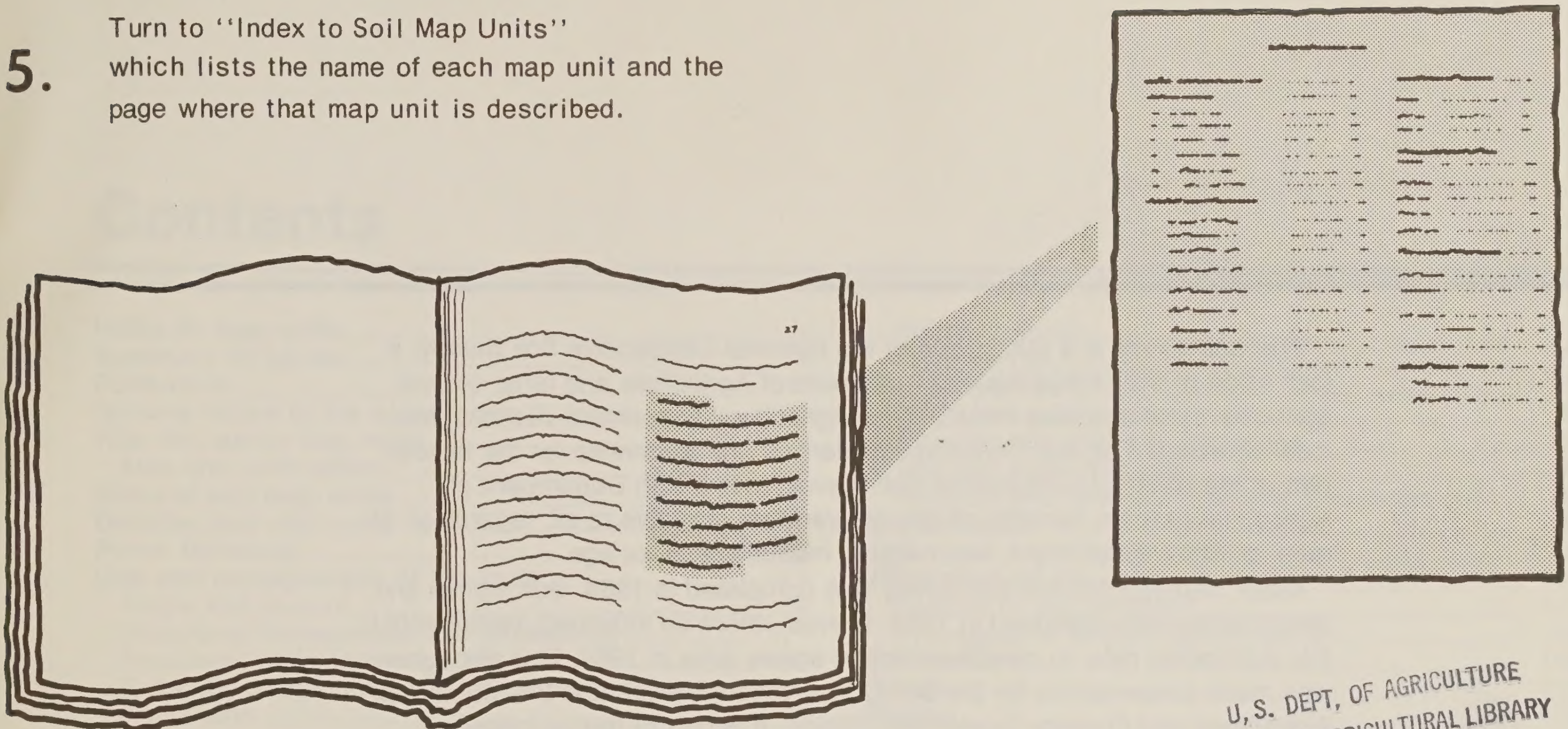


4. List the map unit symbols that are in your area.

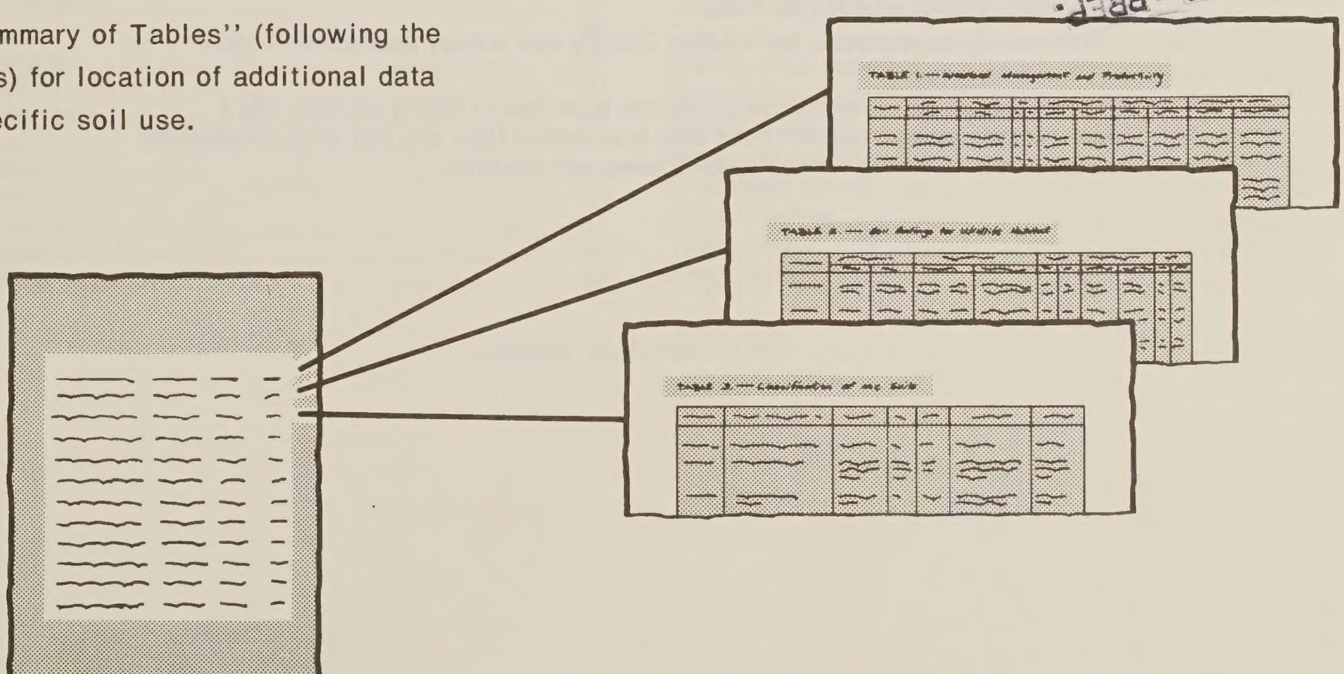


THIS SOIL SURVEY

5. Turn to ''Index to Soil Map Units'' which lists the name of each map unit and the page where that map unit is described.



6. See ''Summary of Tables'' (following the Contents) for location of additional data on a specific soil use.



7. Consult ''Contents'' for parts of the publication that will meet your specific needs. This survey contains useful information for farmers or ranchers, foresters or agronomists; for planners, community decision makers, engineers, developers, builders, or homebuyers; for conservationists, recreationists, teachers, or students; for specialists in wildlife management, waste disposal, or pollution control.

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other federal agencies, state agencies including the Agricultural Experiment Stations, and local agencies. The Soil Conservation Service has leadership for the federal part of the National Cooperative Soil Survey. In line with Department of Agriculture policies, benefits of this program are available to all, regardless of race, color, national origin, sex, religion, marital status, or age.

Major fieldwork for this soil survey was completed in 1984. Soil names and descriptions were approved in 1984. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1984. This soil survey was made cooperatively by the Soil Conservation Service and the Mississippi Agricultural and Forestry Experiment Station. It is part of the technical assistance furnished to the Rankin County Soil and Water Conservation District.

Soil maps in this survey may be copied without permission. Enlargement of these maps, however, could cause misunderstanding of the detail of mapping. If enlarged, maps do not show the small areas of contrasting soils that could have been shown at a larger scale.

This survey supersedes the Rankin County soil survey published in 1926.

Cover: This lake was constructed on hillsides in an area of Kipling silt loam, 5 to 8 percent slopes, eroded, and on a flood plain in an area of Urbo silty clay loam, occasionally flooded. It is used for recreation, livestock water, and irrigation.

Contents

Soil Series

Issued September 1987

Index to Map Units

Summary of Tables

Foreword

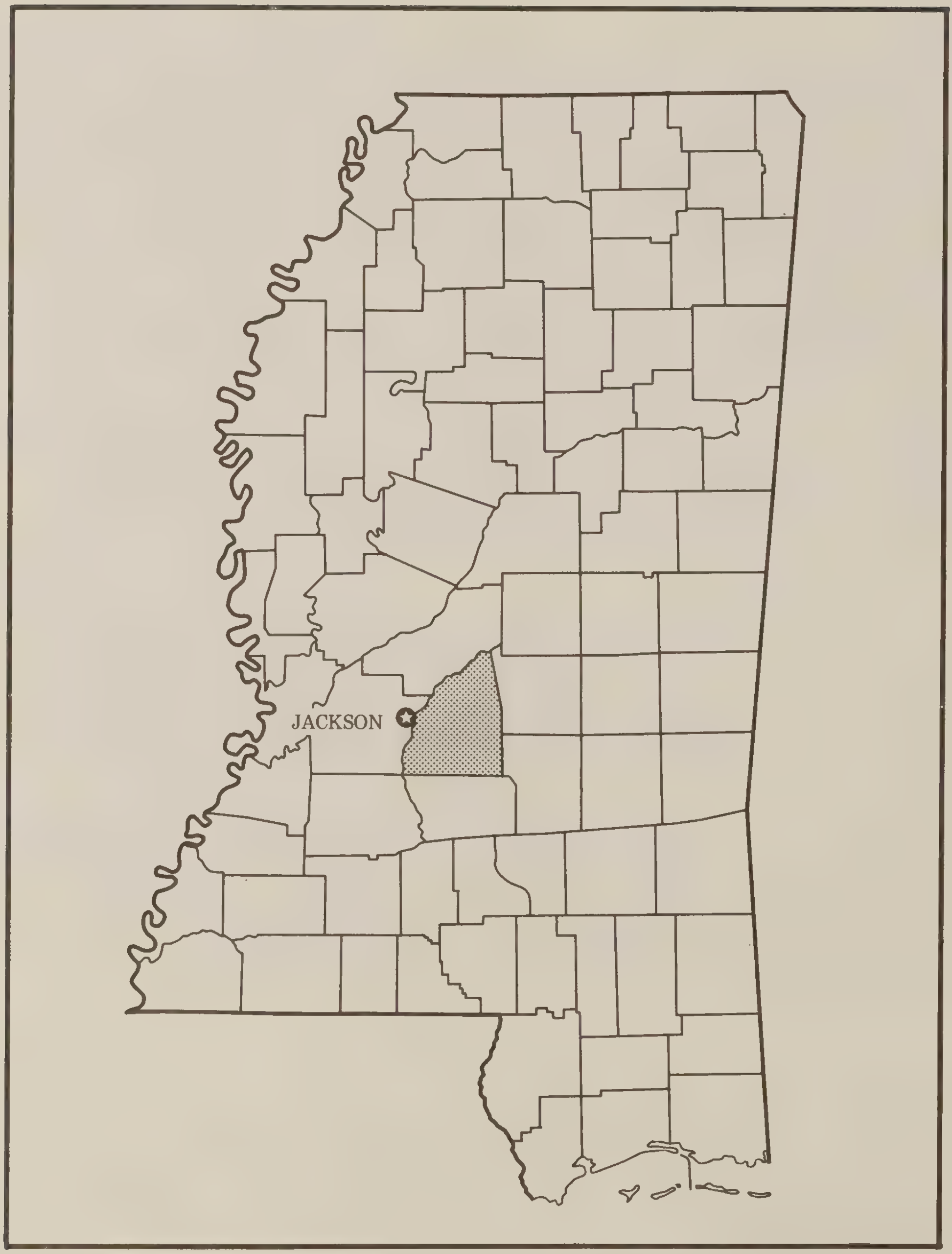
This soil survey contains information that can be used in land-planning programs in Rankin County. It contains predictions of soil behavior for selected land uses. The survey also highlights limitations and hazards inherent in the soil, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

This soil survey is designed for many different users. Farmers, ranchers, foresters, and agronomists can use it to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the survey to plan land use, select sites for construction, and identify special practices needed to insure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the survey to help them understand, protect, and enhance the environment.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are shallow to bedrock. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. Broad areas of soils are shown on the general soil map. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the local office of the Soil Conservation Service or the Cooperative Extension Service.

Albert E. (Gene) Sullivan
State Conservationist
Soil Conservation Service



Location of Rankin County in Mississippi.

Soil Survey of Rankin County, Mississippi

By William A. Cole, Sr., Roger W. Smith, Mary Louise Spann, and Delmer C. Stamps, Soil Conservation Service

United States Department of Agriculture, Soil Conservation Service
In cooperation with
Mississippi Agricultural and Forestry Experiment Station

RANKIN COUNTY is in the southern part of Mississippi. It has a land area of 497,000 acres, or about 776.6 square miles. The total area, including bodies of water of more than 40 acres, is about 512,000 acres. Brandon, the county seat, is near the center of the county. The population of the county in 1980 was 68,183 according to the census.

The western boundary of the county is the Pearl River. The maximum dimension from north to south is about 37 miles and about 30 miles from east to west. The county is bounded on the north by Madison County, on the west by Hinds County, on the south by Simpson County, and on the east by Scott and Smith Counties.

Cotton, soybeans, forest products, poultry, beef and dairy production, and swine are the major sources of agricultural income in Rankin County. Many employees of nearby industrial plants are part-time farmers in the county.

The descriptions, names, and delineations of soils in this survey do not fully agree with those on soil maps for adjacent counties. Differences are the results of better understanding of soils, modification in series concepts, intensity of mapping, or the extent of soils within the survey area.

General Nature of the Survey Area

This section provides information about the climate, history and development, transportation, physiography and geology, relief and drainage, and agriculture of Rankin County.

Climate

Prepared by the National Climatic Data Center, Asheville, North Carolina.

Rankin County, Mississippi, has long, hot summers because moist tropical air from the Gulf of Mexico persistently covers the area. Winters are cool and fairly short with only a rare cold wave that moderates in 1 or 2 days. Precipitation is fairly heavy throughout the year, and prolonged droughts are rare. Summer precipitation, mainly afternoon thunderstorms, is adequate for crops.

Table 1 gives data on temperature and precipitation for the survey area as recorded at Pelahatchie in the period 1951 to 1981. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on length of the growing season.

In winter the average temperature is 50.3 degrees F, and the average daily minimum temperature is 37.7 degrees. The lowest temperature on record, which occurred at Pelahatchie on January 12, 1962, is -3 degrees. In summer the average temperature is 79 degrees, and the average daily maximum temperature is 91 degrees. The highest recorded temperature, which occurred on July 16, 1980, at Pelahatchie, is 104 degrees.

Growing degree days are shown in table 1. They are equivalent to "heat units." During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (50 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The total annual precipitation is 55 inches. Of this, 26 inches, or 50 percent, usually falls in April through September. The growing season for most crops falls within this period. In 2 years out of 10, the rainfall in April through September is less than 21 inches. The heaviest 1-day rainfall during the period of record was 5.58 inches at Pelahatchie on December 29, 1954. Thunderstorms occur on about 64 days each year, and most occur in summer.

The average seasonal snowfall is less than 1 inch. The greatest snow depth at any one time during the period of record was 5 inches.

The average relative humidity in midafternoon is about 60 percent. Humidity is higher at night, and the average at dawn is about 90 percent. The sun shines 65 percent of the time possible in summer and 50 percent in winter. The prevailing wind is from the south. Average windspeed is highest, 9 miles per hour, in spring.

Severe local storms, including tornadoes, strike occasionally in or near the area. They are short and cause variable and spotty damage. Every few years in summer or autumn, a tropical depression or remnant of a hurricane that has moved inland causes extremely heavy rains for 1 to 3 days.

History and Development

The earliest settlers in Rankin County were the Choctaw Indians. The Choctaw Indians farmed the land. In 1820, the Choctaws ceded to the United States the area that is now Rankin County in the Treaty of Doak's Stand, Second Choctaw Cecession *(6)*.

On February 4, 1928, Rankin County was formed from the part of Hinds County that was east of the Pearl River. The county was named for Christopher Rankin, a congressman from Natchez and a member of the State Constitutional Convention of 1817. In 1829, commissioners were appointed to locate a site for the county seat. The site chosen was named Brandon in honor of Gerard C. Brandon, Mississippi's first native governor. In 1831, Brandon became the county seat. Early settlements in Rankin County included Richmond, Steens Creek, Fannin, Antioch, and Pisgah.

The Rankin County acreage that is west of Brandon and south to Florence is mainly in urban, commercial, and industrial use. This area adjoins the city of Jackson, Mississippi's state capitol. The remaining acreage is mainly in agricultural and woodland use.

The population of Rankin County in 1830 was 2,081, and in 1860, it had increased to 13,635. In 1979, the population was estimated at 65,000.

Transportation

Access to Rankin County is provided by 10 state highways, two U.S. highways, Interstate Highways 55 and 20, and numerous county roads and streets. The Illinois Central Gulf Railroad has two lines that cross the county and follow the U.S. highways in an east-west and northwest-south direction. Jackson Municipal Airport is in Rankin County and is serviced by three major airlines. Rankin County's proximity to Jackson, the state capitol, places it in the center of a busy transportation system.

Physiography and Geology

Michael C. Seal, geologist, Mississippi Bureau of Geology, Jackson, Mississippi, prepared this section.

Mississippi is in the Gulf Coastal Plain physiographic province of North America. The state has been further subdivided into 12 physiographic units. In Rankin County, three of these units are represented. The northern two-thirds of the county is characterized by the Jackson Prairie Belt. Noted by gently rolling terrain, its southern limit roughly coincides with the geologic contact between the Yazoo Formation and the Forrest Hill Formation. South of the Jackson Prairie Belt is the Vicksburg Hills, characterized by gently rolling hills. The southern section of Rankin County is characterized by the Piney Woods physiographic unit and is underlain by the Catahoula Formation. On some of the higher elevations are outcrops of preloess terrace deposits and some Citronelle deposits *(3)*.

Bedrock exposed in Rankin County is of Eocene, Oligocene, and Miocene series of the Tertiary System *(4)* and of the Pliestocene and Recent series of the Quaternary System.

The oldest unit exposed in the county is the Yazoo Formation of the Jackson Group. The Yazoo clay is a calcium montmorillonite that exhibits high shrink-swell potential with the removal or addition of water. This characteristic of the Yazoo clay causes foundation problems for all types of structures and roadbeds located on its outcrop. The major economic value of this material is as a lightweight aggregate, but it can also be mixed with other clays to make brick and ceramic materials.

The next oldest sediments exposed are of the Forrest Hill Formation. On the surface, the Forrest Hill sediments are thinly bedded, silty, micaceous, gray, fine to very fine grained sands. Clays are generally gray, buff, pink, and yellow. Thin lignite beds can also be observed in some outcrops. Petrified wood is often scattered over the surface of many Forrest Hill outcrops. A few domestic water wells are completed in the Forrest Hill Formation.

The Mint Springs marl is a gray-green, fine to coarse grained, fossiliferous to very fossiliferous, glauconitic sand. It is sometimes clayey in part and often limy. Fossils in this formation are mostly *Pectins* and oysters. Ferruginous sandstone, limonitic and manganiferous nodules and concretions are the end product of the weathered Mint Spring marl.

The Glendon limestone are characterized by alternating beds of limestone and marl. The thickness of the limestone beds ranges from 4 feet to less than 1/2

foot. They appear gray in the unweathered state. They are glauconitic, fossiliferous, and occasionally slightly sandy to sandy. Weathered Glendon limestone outcrops are noted by resistant limestone ledges, often intermittently apparent in dark-brown residuum. Some outcrops exhibit a white, waxy clay that is on the surface of the residuum. This clay is predominantly montmorillonite and halloysite with kaolinite as a trace constituent. The Glendon limestone has produced lime that is suitable for agricultural and construction purposes. Many specimens of *Foraminifera* and *Pectins* can be collected at Glendon limestone outcrops.

Weathered Byram marl appears as brownish-red, slightly sandy clay. Ferruginous concretions are generally on the surface of weathered exposures. Fossils are abundant in the Byram marl, and several studies of these fossils have been made.

Weathered Bucatunna clay is chocolate brown, has conchoidal blocky fracture, is slightly micaceous, and is slightly silty. Some weathered Bucatunna clay has the resemblance of silty loam. Weathering can make Bucatunna clay difficult to identify.

In weathered outcrops, the Catahoula Formation is an indurated nonmarine series of clays, silts, and sands. In the unweathered state, it is generally not indurated. In some intervals of the Catahoula Formation in Rankin County, an extraordinary amount of salt is evident. Often, these have been used as salt licks by wild and domestic animals. The Catahoula Formation is a source of water for numerous domestic, agricultural, and municipal wells.

The Citronelle Formation is composed of chert and quartz gravel and fine to coarse grained sands and is Pliocene in age.

Preloess terrace deposits consist of fine- to coarse-grained sands that locally contain small amounts of pebble-size gravel. The sands are generally stained orange-red to buff and the gravels are generally finer than those in the Citronelle Formation.

Alluvial plains have developed along the two major rivers in Rankin County and along some of their tributaries.

Relief and Drainage

The topography of Rankin County ranges from gently rolling to steep. In the north one-third of the county and in the area around the Jackson Dome, broad, rounded hills and wide, flat alluvial plains are common. In other parts, more sloping terrain is common. Some areas have high narrow ridges and deep narrow valleys. The highest elevation is about 612 feet along a ridge south of Shiloh Lookout Tower. The lowest point is in the southwest corner of the county along the Pearl River where the elevation is less than 220 feet.

Rankin County is drained by the Pearl River and its tributary, the Strong River. A ridge dividing the two watersheds crosses the southeastern one-fourth of the county in a southwest-northeast direction. Both rivers are fed by four main creeks and their tributaries. The major creeks in the Pearl River watershed are Fannegusha Creek in north Rankin County, Pelahatchie Creek in the north-central area, Richland Creek in west-central Rankin County, and Steen Creek in the southwestern area. The major creeks feeding the Strong River are the Dabbs, Campbell, Brushy, and Purvis Creeks.

Agriculture

When Rankin County was inhabited mainly by the Choctaw Indians, corn was the major agricultural crop. Beans, pumpkins, and melons were the minor crops.

With the early European settlers came changing cropping systems, and before long, cotton was the major cash crop. About 7,500 bales of cotton were produced in 1851 and about 15,000 bales in 1899. Cotton production has fluctuated in the 20th century. About 4,500 bales were produced in 1924, 6,300 bales in 1969, 11,300 bales in 1974, and 9,200 bales in 1981. In recent years, poultry and poultry products have replaced cotton as the main cash crop. In 1974, cotton produced a total income of 2.5 million dollars while poultry and poultry products yielded more than 21.4 million dollars for Rankin County farmers.

Since the early 1900's, the number of farms in Rankin County has declined while the size of the farms has increased. There were 4,151 farms in 1910, 2,207 farms in 1925, and only 888 farms in 1974. The size of the average farm from 1910 to 1925 was 85 acres; and in 1974, it had increased to about 203 acres. In 1910, about 70 percent of the county was in farms, but by 1974, only 36 percent remained in farmland.

In 1965, about 3,000 dairy cattle were in Rankin County. By 1970 the number had declined to 1,700 and by 1974 it had declined to only 998. During this same period, the number of beef cattle changed little, and in 1974, it remained at about 23,000 head.

Woodland in Rankin County decreased from 359,900 acres in 1958 to 310,000 acres in 1977.

How This Survey Was Made

This survey was made to provide information about the soils in the survey area. The information includes a description of the soils and their location and a discussion of the suitability, limitations, and management of the soils for specified uses. Soil scientists observed the steepness, length, and shape of slopes; the general pattern of drainage; the kinds of crops and native plants growing on the soils; and the kinds of bedrock. They dug many holes to study the soil profile, which is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material from which the soil formed. The

unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

The soils in the survey area occur in an orderly pattern that is related to the geology, the landforms, relief, climate, and the natural vegetation of the area. Each kind of soil is associated with a particular kind of landscape or with a segment of the landscape. By observing the soils in the survey area and relating their position to specific segments of the landscape, a soil scientist develops a concept, or model, of how the soils were formed. Thus, during mapping, this model enables the soil scientist to predict with considerable accuracy the kind of soil at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, acidity, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. The system of taxonomic classification used in the United States is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area are generally collected for laboratory analyses and for engineering tests. Soil scientists interpreted the data from these analyses and tests as well as the field-observed characteristics and the soil properties in terms of expected behavior of the soils under different uses. Interpretations for all of the soils were field tested through observation of the soils in different uses under different levels of management. Some interpretations are modified to fit local conditions, and new interpretations sometimes are developed to meet local needs. Data were assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management were assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can state with a fairly high degree of probability that a given soil will have a high water table within certain depths in most years, but they cannot assure that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Map Unit Composition

A map unit delineation on a soil map represents an area dominated by one major kind of soil or an area dominated by several kinds of soil. A map unit is identified and named according to the taxonomic classification of the dominant soil or soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural objects. In common with other natural objects, they have a characteristic variability in their properties. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of soils of other taxonomic classes. Consequently, every map unit is made up of the soil or soils for which it is named and some soils that belong to other taxonomic classes. In the detailed soil map units, these latter soils are called inclusions or included soils. In the general soil map units, they are called soils of minor extent.

Most inclusions have properties and behavioral patterns similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting (similar) inclusions. They may or may not be mentioned in the map unit descriptions. Other inclusions, however, have properties and behavior divergent enough to affect use or require different management. These are contrasting (dissimilar) inclusions. They generally occupy small areas and cannot be shown separately on the soil maps because of the scale used in mapping. The inclusions of contrasting soils are mentioned in the map unit descriptions. A few inclusions may not have been observed, and consequently are not mentioned in the descriptions, especially where the soil pattern was so

complex that it was impractical to make enough observations to identify all of the kinds of soils on the landscape.

The presence of inclusions in a map unit in no way diminishes the usefulness or accuracy of the soil data. The objective of soil mapping is not to delineate pure taxonomic classes of soils but rather to separate the landscape into segments that have similar use and management requirements. The delineation of such landscape segments on the map provides sufficient information for the development of resource plans, but onsite investigation is needed to plan for intensive uses in small areas.

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11 500      "By William A. Cole, Sr. ... [et al.]"--P. 1.
12 500      "Issued September 1987"--P. iii.
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13 504      Bibliography: p. 109.
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16 700 10  Cole, William Aaron, ‡d 1923-
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18 710 20  Mississippi Agricultural and Forestry Experiment Station.
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General Soil Map Units

The general soil map at the back of this publication shows broad areas that have a distinctive pattern of soils, relief, and drainage. Each map unit on the general soil map is a unique natural landscape. Typically, a map unit consists of one or more major soils and some minor soils. It is named for the major soils. The soils making up one unit can occur in other units but in a different pattern.

The general soil map can be used to compare the suitability of large areas for general land uses. Areas of suitable soils can be identified on the map. Likewise, areas where the soils are not suitable can be identified.

Because of its small scale, the map is not suitable for planning the management of a farm or field or for selecting a site for a road or a building or other structure. The soils in any one map unit differ from place to place in slope, depth, drainage, and other characteristics that affect management.

Each map unit is rated for *cultivated crops, woodland, urban uses,* and *wildlife habitat.* Cultivated crops are those grown extensively in the survey area. Woodland refers to areas of native or introduced trees. Urban uses include residential, commercial, and industrial developments. Wildlife habitat includes openland, woodland, and wetland wildlife habitat.

Dominantly nearly level soils that are well drained to poorly drained; on low stream terraces and flood plains

In this group are five general soil map units. The major soils are the well drained to poorly drained, silty Arkabutla, Cascilla, Gillsburg, Guyton, Leverett, Oaklimeter, Tippo, and Urbo soils; and the moderately well drained, loamy Kirkville and Quitman soils. The slopes range from 0 to 2 percent. These map units make up about 21.7 percent of the county.

1. Tippo-Leverett-Guyton

Nearly level, somewhat poorly drained, well drained, and poorly drained, silty soils; on low stream terraces and flood plains

This map unit consists of two broad areas in the west-central part of Rankin County. These soils are on low

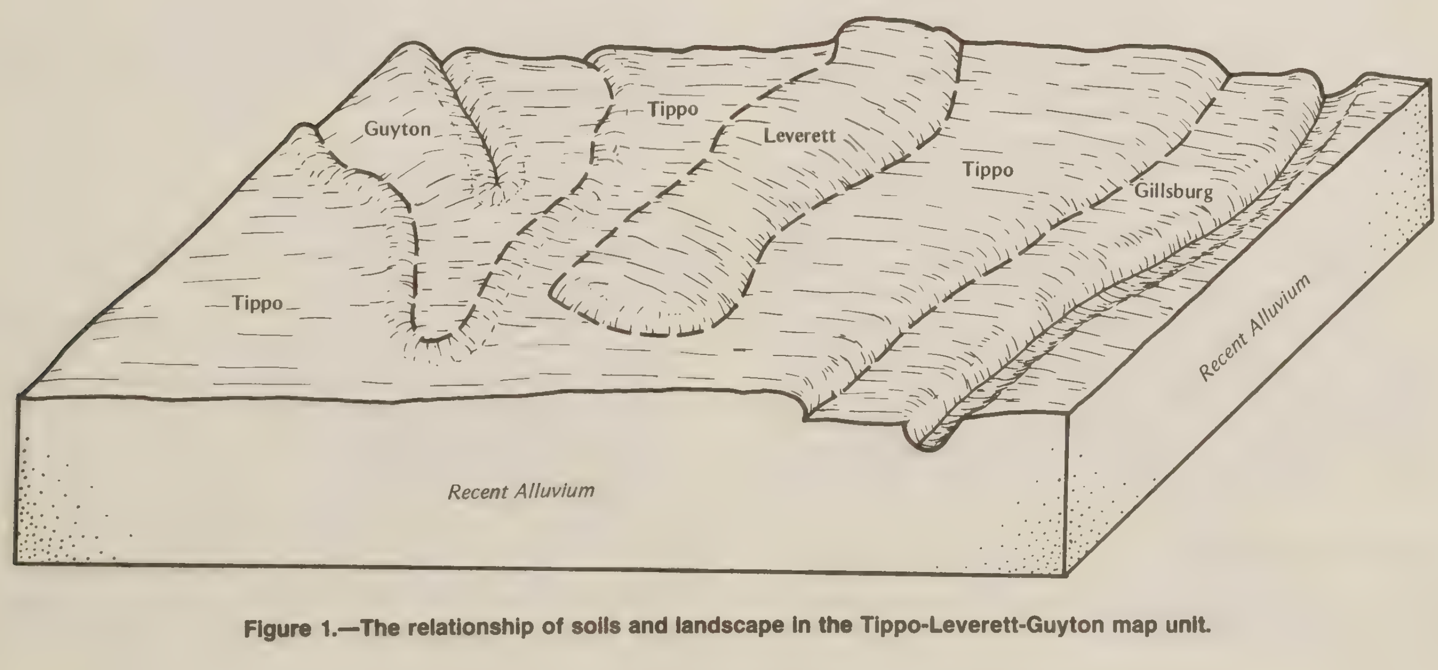

Figure 1.—The relationship of soils and landscape in the Tippo-Leverett-Guyton map unit.

stream terraces and flood plains along the Pearl River and its tributaries. The low stream terraces and flood plains have nearly linear surfaces. The topography is characterized by broad flats, low ridges, shallow swales, and winding stream channels (fig. 1). The soils in the low-lying areas are flooded after a heavy rain. Some depressions, swales, and sloughs are ponded during periods of unusual wetness. The slope ranges from 0 to 2 percent.

This map unit makes up about 3.2 percent of the county. It is about 50 percent Tippo soils, 15 percent Leverett soils, 14 percent Guyton soils, and 21 percent soils of minor extent.

Tippo soils are somewhat poorly drained and are on low stream terraces and flood plains. These soils formed in silty material. Leverett soils are well drained, are on low stream terraces, and are in slightly higher positions on the landscape than Tippo and Guyton soils. These soils formed in silty material. Guyton soils are poorly drained and are on broad, wet flats, stream terraces, and flood plains. These soils formed in silty alluvium.

The minor soils in this map unit are Gillsburg and Oaklimeter soils. These soils are silty, and they are on the flood plains. Gillsburg soils are somewhat poorly drained. Oaklimeter soils are moderately well drained.

The soils in this map unit are mostly in the urban areas of Flowood, Pearl, and Richland. In some areas, the soils are used for crops and pasture. Low, wet areas are in bottom land hardwoods.

Tippo and Leverett soils are well suited to row crops and small grains and to pasture grasses and legumes. Guyton soils are well suited to pasture grasses and legumes but are poorly suited to row crops because of wetness and flooding.

Tippo and Guyton soils are well suited to use as woodland, and Leverett soils are moderately suited to this use. Concerns in management are slight for use of Leverett soil as woodland. Wetness and flooding are severe limitations for use of equipment on Guyton soils and are moderate limitations on Tippo soils.

Guyton and Tippo soils have severe limitations for urban use because of flooding and wetness. In areas that are protected from flooding by levees, Tippo soils are moderately suited to urban use, and Guyton soils are poorly suited to this use because of wetness. Leverett soils have slight limitations for many urban uses.

Leverett and Tippo soils have good potential for the development of habitat for openland and woodland wildlife. Guyton soils have fair potential. For the development of habitat for wetland wildlife, Tippo soils have fair potential, Leverett soils have poor potential, and Guyton soils have good potential.

2. Cascilla-Arkabutla

Nearly level, well drained and somewhat poorly drained, silty soils; on flood plains

This map unit is in the western and northern parts of Rankin County. These soils mainly are on the flood plains of the Pearl River and its tributaries. The nearly linear surface of the flood plain is broken at irregular intervals by old river runs, natural levees, sloughs, chutes, and scarps (fig. 2). The slope ranges from 0 to 2 percent.

This map unit makes up about 3.7 percent of the county. It is about 40 percent Cascilla soils, 32 percent Arkabutla soils, and 28 percent soils of minor extent.

Cascilla soils are well drained. They are near the low scarps and on the slightly higher elevations on natural levees on flood plains along the Pearl River and the major tributaries. These soils formed in silty alluvium. Arkabutla soils are somewhat poorly drained. They are in broad, level areas, in slight depressions, and in the main flood basins of the flood plain. These soils formed in silty alluvium.

The minor soils in this map unit are the Gillsburg and Oaklimeter soils. These soils are silty and on the flood plains. Gillsburg soils are somewhat poorly drained. Oaklimeter soils are moderately well drained.

Most of the acreage in this map unit is in woodland.

Because of wetness and flooding, Cascilla and Arkabutla soils are poorly suited to row crops and small grains. They are moderately suited to pasture grasses and legumes.

The soils in this map unit are well suited to use as woodland. Productivity is high for bottom land hardwoods. The use of equipment is limited because of wetness and flooding. Seedling mortality and plant competition are moderate limitations on these soils.

The soils in this map unit have severe limitations for urban use because of flooding.

Cascilla and Arkabutla soils have fair potential for development of habitat for openland wildlife and good potential for development of habitat for woodland wildlife. For development of habitat for wetland wildlife, Cascilla soils have very poor potential and Arkabutla soils have fair potential.

3. Urbo-Arkabutla

Nearly level, somewhat poorly drained, silty soils; on flood plains

This map unit is in the northern and north-central parts of Rankin County. These soils are along Pelahatchie and Fannegusha Creeks and their tributaries. Areas of these soils are subject to occasional or frequent flooding generally during winter or early in the spring. The slopes range from 0 to 2 percent.

This map unit makes up about 3.5 percent of the county. It is about 48 percent Urbo soils, 28 percent Arkabutla soils, and 24 percent soils of minor extent.

Urbo soils are on broad flats and in depressions of flood plains. These soils formed in clayey alluvium.

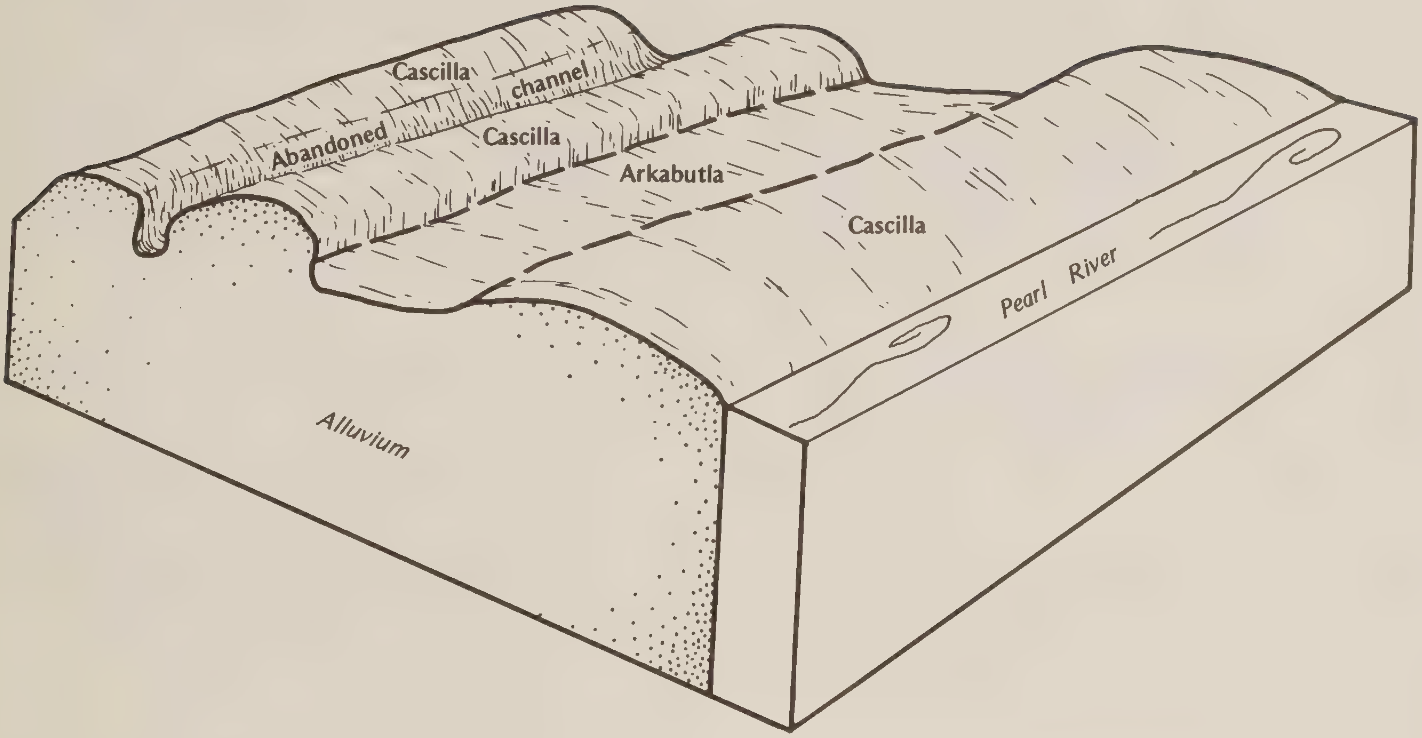

Figure 2.—The relationship of soils and landscape in the Cascilla-Arkabutla map unit.

Arkabutla soils are on broad flats of flood plains. These soils formed in silty alluvium.

The minor soils in this map unit are Gillsburg, Guyton, and Quitman soils. Gillsburg soils are somewhat poorly drained and are on the flood plains. Guyton soils are poorly drained and are on broad flats, stream terraces, and flood plains. Quitman soils are moderately well drained and are on stream terraces.

Most areas of this map unit are used as woodland.

Areas of this map unit that are frequently flooded are poorly suited to row crops and small grains and are only moderately suited to grasses and legumes. Areas that are occasionally flooded are well suited to most commonly grown crops and to grasses and legumes.

Urbo and Arkabutla soils are well suited to use as woodland. Productivity is high for bottom land hardwoods. The use of equipment is limited because of wetness and flooding. Seedling mortality and plant competition are moderate limitations on these soils.

The soils in this map unit have severe limitations for urban use because of flooding.

Urbo and Arkabutla soils have fair potential for the development of habitat for openland wildlife and wetland wildlife. For the development of habitat for woodland wildlife, Urbo soils have fair potential and Arkabutla soils have good potential.

4. Oaklimeter-Gillsburg

Nearly level, moderately well drained and somewhat poorly drained, silty soils; on flood plains

This map unit is on flood plains in the southwestern part of Rankin County. The flood plains range from 300 feet wide to about 2 miles or more wide. Flooding is occasional or frequent. The slope ranges from 0 to 2 percent.

This map unit makes up about 5.3 percent of the county. It is about 58 percent Oaklimeter soils, 24 percent Gillsburg soils, and 18 percent soils of minor extent.

Oaklimeter soils are moderately well drained. They commonly are in slightly higher positions on the flood plains than Gillsburg soils. These soils formed in silty alluvium. The Gillsburg soils are somewhat poorly drained. They are on flood plains. These soils formed in silty alluvium.

The minor soils in this map unit are Arkabutla, Kirkville, Guyton, and Tippo soils. The Arkabutla soils are somewhat poorly drained and are on the flood plains.

Kirkville soils are moderately well drained and are on flood plains. Guyton soils are poorly drained and are on broad flats, stream terraces, and flood plains. The Tippo soils are somewhat poorly drained and are on broad flats, stream terraces, and flood plains.

Most of the acres of this map unit is used as woodland. Some areas are used for pasture or crops.

Areas of this map unit that are occasionally flooded are well suited to cultivated crops and small grains and to pasture grasses and legumes. Areas that are subject to frequent flooding are poorly suited to row crops and small grains.

Oaklimeter and Gillsburg soils are well suited to use as woodland, especially bottom land hardwoods. Flooding and seasonal wetness are the main concerns in woodland management and limit the use of equipment on these soils. Plant competition and seedling mortality are moderate limitations.

The soils in this map unit have severe limitations for urban use because of flooding.

Oaklimeter and Gillsburg soils have fair potential for the development of habitat for openland wildlife and good potential for the development of habitat for woodland wildlife. For development of habitat for wetland wildlife, Oaklimeter soils have poor potential and Gillsburg soils have fair potential.

5. Quitman-Kirkville

Nearly level, moderately well drained, loamy soils; on low stream terraces and flood plains

This map unit is in the central and southeastern part of Rankin county. These soils mostly are on terraces and flood plains along the Strong River and its major tributaries (fig. 3). Kirkville soils are subject to flooding mainly during winter or early in the spring. Flooding is generally of brief duration. The slope ranges from 0 to 5 percent.

This map unit makes up about 6 percent of the county. It is about 54 percent Quitman soils, 34 percent Kirkville soils, and 12 percent soils of minor extent.

Quitman soils are on low terraces or second bottoms adjacent to the uplands. These soils formed in loamy material. Kirkville soils are on flood plains near stream channels. These soils formed in loamy alluvium.

The minor soils in this map unit are Guyton, Tippo, Oaklimeter, and Savannah soils. Guyton and Tippo soils are on broad flats, stream terraces, and flood plains. Guyton soils are poorly drained, and Tippo soils are somewhat poorly drained. Oaklimeter soils are moderately well drained and are on flood plains. Savannah soils are moderately well drained and are on stream terraces.

The soils in this map unit are used mainly for cultivated crops or as woodland. The other soils are in pasture. These soils are well suited to most commonly grown crops and small grains and to pasture grasses and legumes.

Quitman and Kirkville soils are well suited to use as woodland. Flooding and wetness are moderate limitations to use of equipment. Plant competition is a moderate limitation.

The Quitman soils in this map unit are moderately suited to urban use because of wetness. The Kirkville soils are poorly suited to urban use because of flooding.

Quitman and Kirkville soils have good potential for the development of habitat for openland and woodland wildlife and poor potential for the development of habitat for wetland wildlife.

Dominantly nearly level to steep soils that are well drained to somewhat poorly drained; on uplands and stream terraces

In this group are five general soil map units. The major soils are the somewhat poorly drained to moderately well drained, silty Falkner, Kipling, Providence, and Tippah soils; and the moderately well drained to well drained, loamy Quitman, Savannah, and Smithdale soils. The slopes range from 0 to 40 percent. These map units make up about 78.3 percent of the county.

6. Kipling-Falkner-Savannah

Nearly level to sloping soils; some are somewhat poorly drained, silty soils that are underlain by a plastic, clayey subsoil; and some are moderately well drained, loamy soils that have a fragipan; on uplands and stream terraces

This map unit is on the prairie in the northern part of Rankin County. The landscape has low relief and is mainly nearly level to gently rolling. In some places, the low hills have a cap of loamy terrace sediments (fig. 4). The slope ranges from 0 to 8 percent.

This map unit makes up about 23.6 percent of the county. It is about 40 percent Kipling soils, 18 percent Falkner soils, 16 percent Savannah soils, and 26 percent soils of minor extent.

Kipling soils are silty and are somewhat poorly drained. They are on uplands. These soils formed in clayey material. Falkner soils are silty and are somewhat poorly drained. They are on uplands and stream terraces. These soils formed in a silty mantle and the underlying acid, clayey deposits. Savannah soils are loamy and moderately well drained and have a fragipan. They are in slightly higher positions on the uplands and stream terraces than Kipling and Falkner soils. These soils formed in loamy material.

The minor soils in this map unit are Pelahatchie, Providence, Quitman, and Urbo soils. Pelahatchie soils are moderately well drained and are on uplands. Providence and Quitman soils are moderately well drained and are on uplands and stream terraces. Urbo soils are somewhat poorly drained and are on the flood plains.

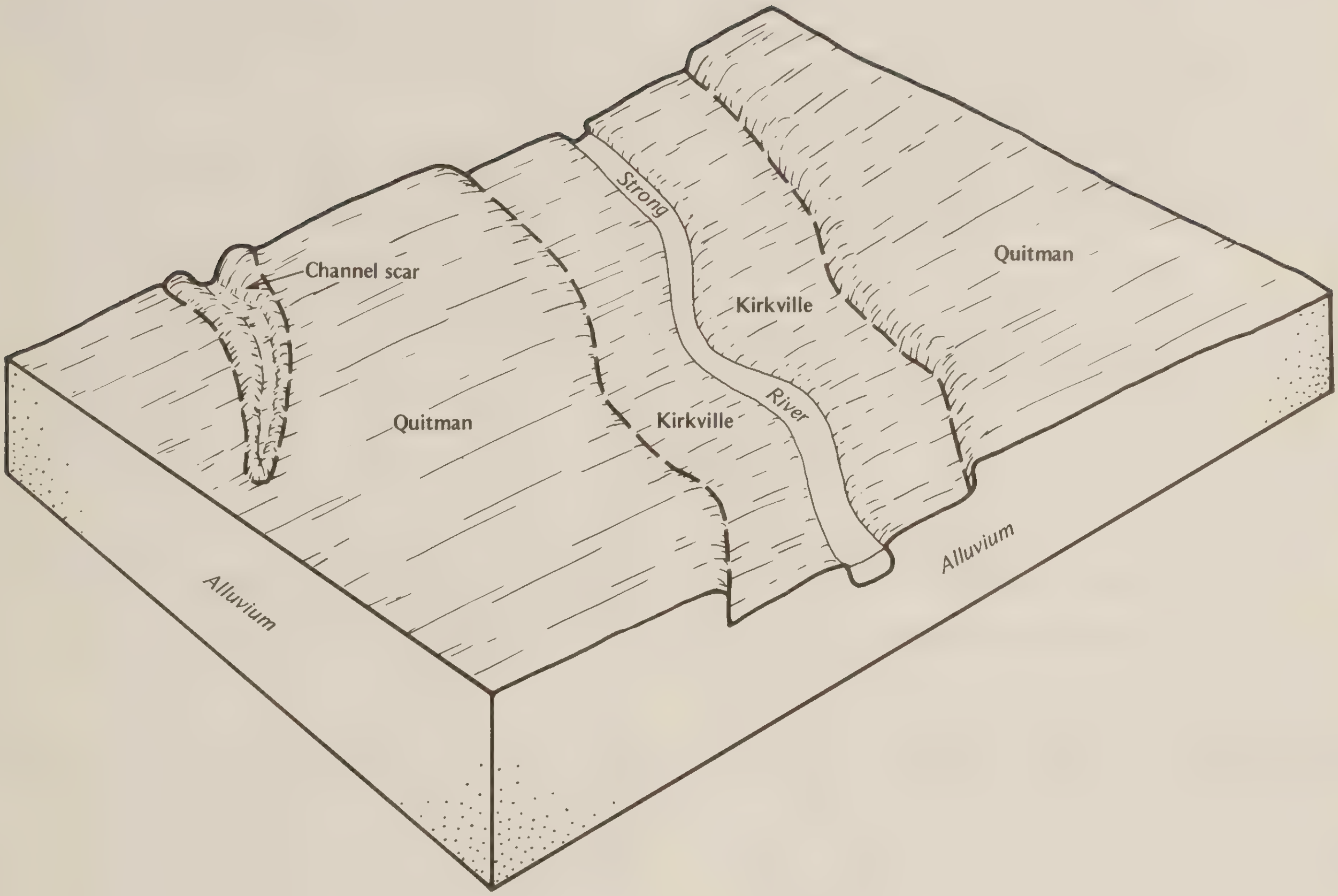

Figure 3.—The relationship of soils and landscape in the Quitman-Kirkville map unit.

Most of the acreage in this map unit is used for cultivated crops or as woodland. The other acreage is in pasture.

The nearly level or gently sloping areas of Falkner and Kipling soils are moderately suited to most commonly grown row crops and small grains and are well suited to grasses and legumes for hay and pasture. Savannah soils are well suited to row crops and small grains and to grasses and legumes for hay and pasture.

Kipling and Falkner soils are well suited to use as woodland. Seasonal wetness is a moderate limitation to use of equipment, and plant competition is a moderate limitation if pines are planted. Savannah soils are moderately suited to use as woodland, but windthrow and plant competition are moderate limitations.

Wetness and high shrink-swell potential of the subsoil severely restrict Kipling and Falkner soils for urban use. Mainly because of seasonal wetness, Savannah soils have moderate limitations for urban use.

The soils in this map unit have good potential for the development of habitat for openland and woodland wildlife. For development of habitat for wetland wildlife, Falkner and Savannah soils have very poor potential. In the nearly level areas, Kipling soils have fair potential for habitat for wetland wildlife; in the gently sloping areas, they have poor potential; and in the sloping areas, they have very poor potential.

7. Smithdale-Providence

Gently sloping to steep soils; some are well drained, loamy soils; and some are moderately well drained, silty soils that have a fragipan; on uplands and steam terraces

This map unit is in the central and southern parts of Rankin County. The landscape is hilly and is marked by narrow ridgetops that are generally less than one-eighth of a mile wide, by hillsides that are dissected by many

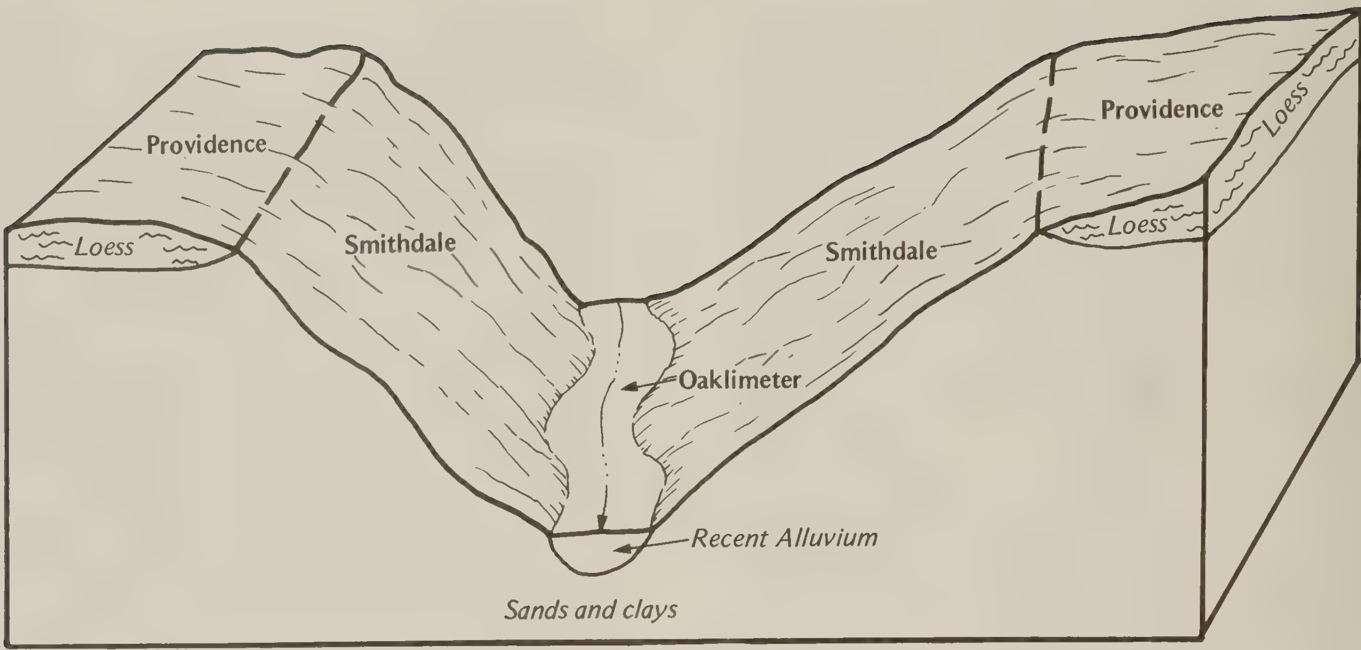

Figure 4.—The relationship of soils and landscape in the Kipling-Falkner-Savannah map unit.

short drainageways, and by narrow flood plains (fig. 5). The slope is dominantly 5 to 40 percent.

This map unit makes up about 19.3 percent of the county. It is about 43 percent Smithdale soils, 30 percent Providence soils, and 27 percent soils of minor extent.

Smithdale soils are loamy and are well drained. They are on the steeper hillsides on uplands. These soils formed in loamy material. Providence soils are silty and moderately well drained and have a fragipan. They are on uplands and stream terraces. These soils formed in a mantle of silty material and in the underlying loamy sediment.

The minor soils in this map unit are Kisatchie, Savannah, Tippah, Oaklimeter, Kirkville, and Gillsburg soils. Kisatchie soils are well drained and are on uplands. Savannah and Tippah soils are moderately well drained and are on uplands. Oaklimeter and Kirkville soils are moderately well drained and are on the flood plains. Gillsburg soils are somewhat poorly drained and are on the flood plains.

Most areas of this map unit are used as woodland. A small acreage is used for pasture and crops.

The Smithdale soils are poorly suited to row crops and small grains and to pasture grasses and legumes because of steep slopes. In the gently sloping areas, Providence soils are well suited to row crops, and in the sloping areas, they are moderately suited to this use. In the gently sloping and sloping areas, Providence soils are well suited to grasses and legumes for hay and pasture, and in the sloping areas, they are moderately suited to this use.

Providence soils are moderately suited to use as woodland. Concerns in woodland management are few. Smithdale soils are moderately suited to woodland use. Steepness of slope is a moderate limitation to use of equipment on Smithdale soils if slopes are more than 15 percent.

Smithdale soils have severe limitations for urban use because of steepness of slopes. Providence soils have moderate limitations for urban use mainly because of seasonal wetness and steepness of slopes.

Smithdale and Providence soils have good potential for the development of habitat for openland and woodland wildlife, but on Smithdale soils if slopes are more than 15 percent, potential is fair. For the development of habitat for wetland wildlife, the potential of the soils in this map unit is very poor.

8. Providence-Tippah

Gently sloping to moderately steep, moderately well drained, silty soils; some have a fragipan; and some are underlain by plastic, clayey material; on uplands and stream terraces

This map unit is in the west-central and southwestern part of Rankin County. The landscape has moderate relief and is generally rolling but is moderately steep along the major drainageways. It is marked by broad ridgetops, by hillsides that are dissected by short

drainageways, and by narrow flood plains along the streams. The slope ranges from 0 to 15 percent.

This map unit makes up about 17.9 percent of the county. It is about 54 percent Providence soils, 31 percent Tippah soils, and 15 percent soils of minor extent.

Providence soils have a fragipan. They are on uplands and stream terraces. These soils formed in a mantle of silty material and the underlying loamy material. Tippah soils are on uplands. These soils formed in a mantle of silty material and the underlying clayey material.

The minor soils in this map unit are Kirkville, Oaklimeter, and Savannah soils. Kirkville and Oaklimeter soils are moderately well drained and are on the flood plains. Savannah soils are moderately well drained and are on uplands and stream terraces.

Most of the acreage in this map unit is used as woodland or pasture. Some areas are used for row crops.

In the gently sloping areas, Providence and Tippah soils are well suited to most commonly grown crops and small grains and to grasses and legumes for hay and pasture. In the sloping areas, these soils are moderately suited to most commonly grown crops and small grains and are well suited to grasses and legumes for hay and pasture.

The soils in this map unit are moderately suited to use as woodland. Plant competition is the main limitation on Tippah soils, and windthrow is a limitation on Providence soils.

Wetness and steepness of slopes are moderate limitations to use of Providence soils for urban use. On Tippah soils, wetness and shrink-swell potential of the subsoil are severe limitations for urban use.

The soils in this map unit have good potential for the development of habitat for openland and woodland wildlife and poor or very poor potential for development of habitat for wetland wildlife.

9. Smithdale-Savannah

Gently sloping to steep, loamy soils; some are well drained; and some are moderately well drained and have a fragipan; on uplands and stream terraces

This unit is in the eastern and southeastern parts of Rankin County. The landscape is hilly and is marked by narrow ridgetops that are generally less than one-eighth of a mile wide, by steep hillsides that are dissected by many short drainageways, and by narrow flood plains along the streams. The slope ranges from 2 to 40 percent.

This map unit makes up about 11.4 percent of the county. It is about 44 percent Smithdale soils, 38 percent Savannah soils, and 18 percent soils of minor extent.

Smithdale soils are well drained. They are on the steeper upland hillsides than Savannah soils. These soils

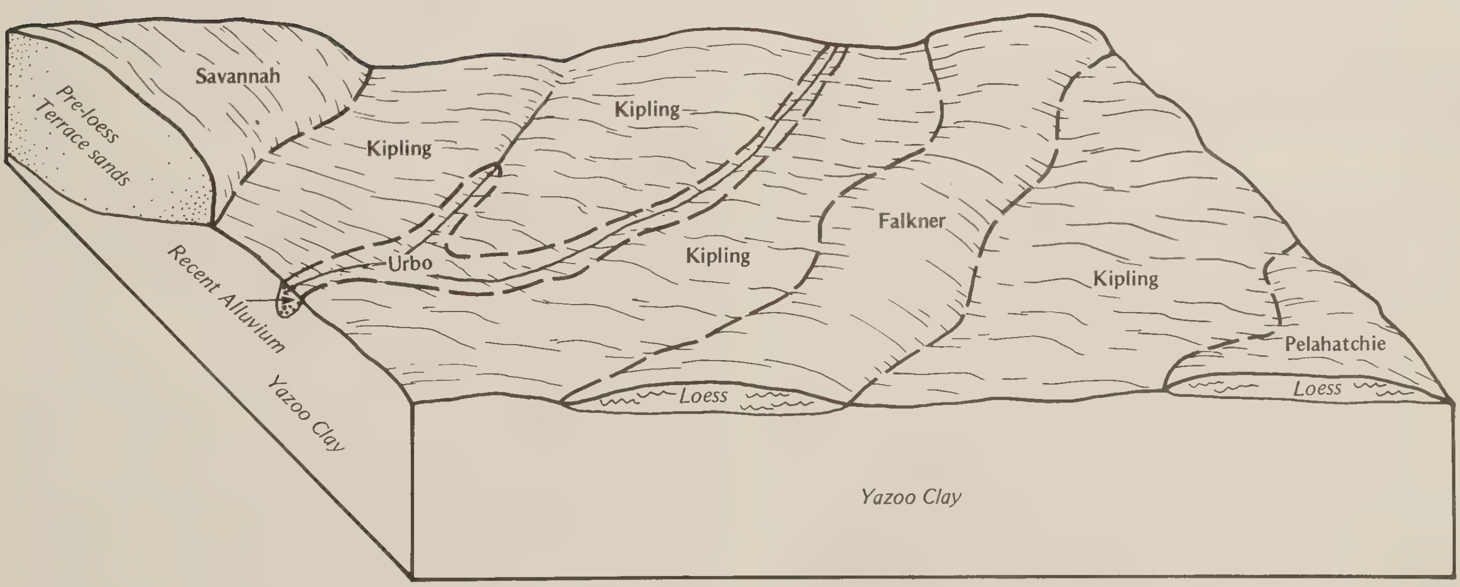

Figure 5.—The relationship of soils and landscape in the Smithdale-Providence map unit.

formed in loamy marine sediment. Savannah soils are moderately well drained and have a fragipan. They mainly are on ridgetops on uplands and stream terraces. These soils formed in loamy material.

The minor soils in this map unit are Kirkville, Maben, Ora, and Tippah soils. Kirkville soils are moderately well drained and are on the flood plains. Maben soils are well drained and are on uplands. Ora and Tippah soils are moderately well drained and are on uplands.

Most of the acreage in this map unit is used as woodland or pasture. A small acreage is in row crops.

Smithdale soils are poorly suited to row crops and small grains but are moderately suited to grasses and legumes. The main limitation to use of these soils for row crops and small grains is the steep slopes. Erosion is a hazard. In the gently sloping areas, Savannah soils are well suited to row crops and small grains; in the sloping areas, they are moderately suited to this use. Savannah soils are well suited to grasses and legumes for hay and pasture.

The soils in this map unit are moderately suited to use as woodland. Smithdale soils have no significant limitations to woodland use and management. Plant competition and windthrow are moderate limitations to use of Savannah soils as woodland if pine trees are planted.

Smithdale soils have severe limitations for urban and recreational uses because of steepness of slope. Savannah soils are moderately limited for these uses because of wetness.

Smithdale and Savannah soils have good potential for the development of habitat for openland wildlife, but if slopes are more than 15 percent, potential is poor. For development of habitat for woodland wildlife, these soils have good potential; for habitat for wetland wildlife, potential is very poor.

10. Savannah-Quitman

Nearly level to sloping, moderately well drained, loamy soils; some have a fragipan; on uplands and stream terraces

This map unit is in the eastern and southeastern parts of Rankin County. The landscape generally is nearly level to gently rolling but can include a few areas that are moderately steep. It is marked by broad ridges and nearly level, low terraces. The slope ranges from 0 to 8 percent.

This map unit makes up about 6.1 percent of the county. It is about 43 percent Savannah soils, 30 percent Quitman soils, and 27 percent soils of minor extent.

Savannah soils have a fragipan. They generally are in the raised, more sloping areas on uplands and stream terraces. These soils formed in loamy material. Quitman soils are in the low, smooth areas near drainageways, on uplands, and on stream terraces. These soils formed in loamy material.

The minor soils in this map unit are Kirkville, Ora, and Tippah soils. Kirkville soils are moderately well drained and are on the flood plains. Ora and Tippah soils are moderately well drained and are on uplands.

Most of the acreage in this map unit is used as woodland or pasture. A small acreage is in crops.

In the gently sloping areas, Savannah and Quitman soils are well suited to row crops and small grains, and in the sloping areas, these soils are moderately suited to this use. The soils in this map unit are well suited to most grasses and legumes for hay and pasture.

Savannah soils are moderately suited to woodland. Windthrow and plant competition are moderate. Quitman soils are well suited to use as woodland. Wetness is a moderate limitation for equipment use.

Wetness is a moderate limitation to use of Savannah soils for most urban uses. Wetness and low strength as it affects local roads and streets are moderate limitations to use of Quitman soils for urban use.

Savannah and Quitman soils have good potential for the development of habitat for openland and woodland wildlife. In the nearly level areas, Quitman soils have a poor potential for development of habitat for wetland wildlife, and Savannah soils have a very poor potential.

Broad Land Use Consideration

The soils in Rankin County vary widely in their suitabilities and limitations for major land uses. Kinds of soil limitations are indicated in general terms. The ratings of soil reflect the relative cost of practices to overcome the limitations and the hazard of continuing soil-related problems after practices are installed.

Kinds of land uses considered include cropland, pasture, woodland, urban development, and the development of habitat for wildlife. Cultivated farm crops grown extensively include cotton, soybeans, corn, and wheat. Woodland refers to land in trees. Urban areas include those used as residential, commercial, and industrial sites. Habitat for wildlife uses include habitat for openland wildlife, woodland wildlife, and wetland wildlife.

About 10 percent, or 49,853 acres, of Rankin County is used for cultivated crops, mostly soybeans, cotton, and wheat. Cropland is scattered throughout the county in areas of soils that are well suited to or moderately suited to row crops. These soils are mainly in map units 1, 3, 4, 5, 6, 8, and 10.

The soils in map units 3, 4, and 5 are occasionally flooded, mainly in winter and early in the spring. This flooding causes slight to moderate crop damage. The major soils in these map units are Urbo, Arkabutla, Oaklimeter, Gillsburg, Quitman, and Kirkville soils. Tippo and Guyton soils in map unit 1 are seasonally wet.

Erosion is a major hazard in growing crops on soils in map units 6, 8, and 10. Kipling, Falkner, Savannah, Providence, Tippah, and Quitman soils make up these map units.

About 61 percent, or 310,000 acres, of the county is used as woodland. Soils in all map units are well suited to or moderately suited to trees. Some soils have a moderate to severe limitation for equipment use, but this limitation can be overcome by harvesting during the drier periods.

About 6 percent, or 33,176 acres, of the county is classified as urban or built-up land. Soils in map units 2, 3, 4, and 5 that are on flood plains have severe limitations for urban use because of flooding. Quitman soils in map unit 5 are on higher elevations and are not subject to flooding. Soils in map unit 1 that are in protected areas have moderate limitations for urban use. Soils in map units 7 and 9 that are in hilly areas have severe limitations for urban use, mainly, because of the steepness of slope.

Soils in map units 8 and 10 have moderate limitations for urban use. High shrink-swell potential, low strength as it affects local roads and streets, and wetness are the main limitations of these soils for urban use. Most of the limitations can be overcome by special design and proper installation. The restricted permeability of Providence, Tippah, and Savannah soils is a limitation to use as septic tank absorption fields. This limitation can be partly overcome by enlarging septic tank absorption fields.

Kipling and Falkner soils in map unit 6 have severe limitations for urban use because of wetness and the high shrink-swell potential of the subsoil. Savannah soils have moderate limitations for urban use, mainly, because of wetness.

Detailed Soil Map Units

The map units on the detailed soil maps at the back of this survey represent the soils in the survey area. The map unit descriptions in this section, along with the soil maps, can be used to determine the suitability and potential of a soil for specific uses. They also can be used to plan the management needed for those uses. More information on each map unit, or soil, is given under "Use and Management of the Soils."

Each map unit on the detailed soil maps represents an area on the landscape and consists of one or more soils for which the unit is named.

A symbol identifying the soil precedes the map unit name in the soil descriptions. Each description includes general facts about the soil and gives the principal hazards and limitations to be considered in planning for specific uses.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer or of the underlying material, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer or of the underlying material. They also can differ in slope, wetness, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Providence silt loam, 2 to 5 percent slopes, eroded, is one of several phases in the Providence series.

Some map units are made up of two or more major soils. These map units are called soil complexes or soil associations.

A *soil complex* consists of two or more soils in such an intricate pattern or in such small areas that they cannot be shown separately on the soil maps. The pattern and proportion of the soils are somewhat similar in all areas. Smithdale-Providence complex, 8 to 17 percent slopes, is an example.

A *soil association* is made up of two or more geographically associated soils that are shown as one unit on the maps. Because of present or anticipated soil uses in the survey area, it was not considered practical or necessary to map the soils separately. The pattern and relative proportion of the soils are somewhat similar. Cascilla-Arkabutla association, frequently flooded, is an example.

Most map units include small scattered areas of soils other than those for which the map unit is named. Some of these included soils have properties that differ substantially from those of the major soil or soils. Such differences could significantly affect use and management of the soils in the map unit. The included soils are identified in each map unit description.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Urban land is an example. Miscellaneous areas are shown on the soil maps. Some that are too small to be shown are identified by a special symbol on the soil maps.

Table 4 gives the acreage and proportionate extent of each map unit. Other tables (see "Summary of Tables") give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils.

2—Cascilla-Arkabutla association, frequently flooded. This map unit consists of deep, well drained and somewhat poorly drained, nearly level soils on the broad flood plain of the Pearl River. These soils formed in silty alluvium. In this flood plain area are abandoned channels and associated natural levees, oxbow lakes, low ridges, and intervening flats and depressions. Cascilla soil is well drained and mainly is on old natural levees and slight ridges. Arkabutla soil is somewhat poorly drained and mainly is on the broad flats and in small depressions. Individual areas of each soil are large enough to be mapped separately, but because of similar present or predicted uses, they were mapped as an association. The mapped areas range from 160 to 1,600 acres. The slopes are 0 to 2 percent.

Cascilla soil and soils that are similar make up about 43 percent of the map unit, and Arkabutla soil and soils that are similar make up 34 percent. The included soils make up 23 percent of the map unit.

The typical sequence, depth, and composition of the layers of Cascilla soil are as follows:

Surface layer:

0 to 2 inches; very dark grayish brown silt loam

Subsurface layer:

2 to 6 inches; dark grayish brown silt loam

Subsoil:
6 to 18 inches; dark brown silt loam
18 to 50 inches; yellowish brown silt loam

Substratum:
50 to 70 inches or more; yellowish brown fine sandy loam

Important soil properties of Cascilla soil:

Permeability: Moderate

Available water capacity: High

Soil reaction: Very strongly acid or strongly acid throughout except in areas where the surface layer has been limed

Surface runoff: Slow

Erosion hazard: Slight

Seasonal water table: None within a depth of 6 feet

Flooding: Frequent for brief to very long periods late in winter and early in the spring

Root zone: Deep and easily penetrated by plant roots

Shrink-swell potential: Low

Tilth: Surface layer—friable; easily tilled throughout a wide range of moisture content; tends to crust and pack after heavy rains

The typical sequence, depth, and composition of the layers of Arkabutla soil are as follows:

Surface layer:
0 to 3 inches; very dark grayish brown silt loam
3 to 8 inches; dark brown silt loam that has grayish brown mottles

Subsoil:
8 to 18 inches; mottled light brownish gray, yellowish brown, and dark yellowish brown silt loam
18 to 34 inches; light brownish gray silt loam that has yellowish brown mottles
34 to 61 inches; light brownish gray silty clay loam

Important soil properties of Arkabutla soil:

Permeability: Moderate

Available water capacity: High

Soil reaction: Very strongly acid or strongly acid throughout except in areas where the surface layer has been limed

Surface runoff: Slow

Erosion hazard: Slight

Seasonal water table: Fluctuates between a depth of 1 foot and 1.5 feet during prolonged wet periods

Flooding: Frequent for brief to very long periods late in winter and early in the spring

Root zone: Deep, but a water table commonly at a depth of 1 foot to 1.5 feet in winter and in the spring limits plant growth

Shrink-swell potential: Low

Tilth: Surface layer—friable, easily tilled throughout a wide range of moisture content, tends to crust and pack after heavy rains

Included with these soils in mapping are small areas of Gillsburg, Tippo, Oaklimeter, Cahaba, and Leverett soils. Gillsburg and Oaklimeter soils are on the flood plains, Tippo soils are on stream terraces and flood plains, and Cahaba and Leverett soils are on stream terraces. Also included are some sandy and loamy soils on flood plains, in and along sloughs, and in abandoned channels. The included soils make up about 23 percent of the map unit.

Most areas of Cascilla and Arkabutla soils are used as woodland.

These soils are poorly suited to row crops and small grains because of frequent flooding and wetness. They are moderately suited to grasses and legumes for hay and pasture. Wetness limits the choice of plants and restricts grazing. Proper stocking, controlled grazing, and weed and brush control help keep the soil and pasture in good condition.

Cascilla and Arkabutla soils are well suited to loblolly pine, sweetgum, eastern cottonwood, cherrybark oak, water oak, and Nuttall oak. In addition, Cascilla soil is well suited to yellow-poplar, and Arkabutla soil is well suited to green ash. Wetness and flooding are moderate limitations to use of equipment on Cascilla soil, and they are severe limitations for equipment use on Arkabutla soil. Seedling mortality and plant competition are moderate on Cascilla and Arkabutla soils. Wetness and flooding limitations can be alleviated by harvesting during the drier periods. If pines are planted on these soils, site preparation is needed to control competition from undesirable plants. Benefits of site preparation do not extend beyond one growing season. Natural regeneration of hardwood trees occurs without difficulty in all openings of one-half acre or more. Logging roads

should be located at right angles to streams to prevent the forming of new stream channels from forming in vehicle tracks.

Flooding and wetness are severe limitations for urban use.

The soils in this map unit are in capability subclass IVw. Cascilla soil is in woodland suitability group 14W, and Arkabutla soil is in woodland suitability group 12W.

3—Oaklimeter silt loam, occasionally flooded. This is a deep, moderately well drained, nearly level soil on the flood plains of small streams. It formed in silty alluvium. Individual areas range from 10 to more than 160 acres. The slopes are 0 to 2 percent.

The typical sequence, depth, and composition of the layers of Oaklimeter soil are as follows:

Surface layer:
0 to 9 inches; dark yellowish brown silt loam

Subsoil:
9 to 19 inches; mottled dark yellowish brown, yellowish brown, and brown silt loam
19 to 30 inches; mottled dark yellowish brown, light yellowish brown, and light brownish gray silt loam
30 to 46 inches; mottled yellowish brown, light yellowish brown, and brown silt loam
46 to 50 inches; light brownish gray silt loam that has yellowish brown mottles
50 to 65 inches; mottled light brownish gray, dark yellowish brown, and brown silt loam

Important soil properties of Oaklimeter soil:

Permeability: Moderate

Available water capacity: High

Soil reaction: Very strongly acid or strongly acid throughout except in areas where the surface layer has been limed

Surface runoff: Slow

Erosion hazard: Slight

Seasonal water table: At a depth of 1.5 to 2.5 feet in winter and early in the spring

Flooding: Occasionally flooded for brief periods following heavy rains in winter and early in the spring

Root zone: Deep, but a seasonal water table commonly at a depth of 1.5 to 2.5 feet in winter and early in the spring somewhat limits plant growth

Shrink-swell potential: Low

Tilth: Surface layer—friable; easily tilled throughout a wide range of moisture content; tends to pack and crust after heavy rains

Included with this soil in mapping are small areas of Gillsburg, Kirkville, and Tippo soils. Gillsburg soils are in similar positions on the landscape as Oaklimeter soils but are somewhat poorly drained. Kirkville soils are in similar positions and are also moderately well drained. Tippo soils are on stream terraces and flood plains, but they are somewhat poorly drained. Also, a few areas of Oaklimeter soils that are frequently flooded are included and some small areas of soils that are mildly alkaline in some horizons.

Most of the acreage of this Oaklimeter soil is used for row crops or pasture. A small acreage is used as woodland.

This soil is well suited to row crops and small grains, (fig. 6). Seasonal wetness is the main limitation. Proper arrangement of rows and surface field ditches remove excess surface water from low-lying areas. Returning crop residue to the soil improves tilth. Conservation tillage is beneficial. In the spring, seedbed preparation and the cultivation of the soil are sometimes delayed because of wetness and flooding. In wet years, flooding during the growing season can damage the crops.

This soil is well suited to grasses and legumes for hay and pasture. Overgrazing or grazing when the soil is too wet causes surface compaction and poor tilth and reduces the rate of moisture infiltration. Proper stocking, pasture rotation, weed and brush control, and restricted use during wet periods help keep the pasture and soil in good condition.

This soil is well suited to loblolly pine, sweetgum, eastern cottonwood, cherrybark oak, Nuttall oak, willow oak, and green ash. Equipment use and plant competition are moderate concerns in woodland management. Seasonal wetness and flooding are moderate limitations for the use of equipment, but they can be alleviated by harvesting during the drier periods. If pines are planted on this soil, site preparation is needed to control competition from undesirable plants. Benefits of site preparation do not extend beyond one growing season. Natural regeneration of hardwood trees occurs without difficulty in all openings of one-half acre or more. Logging roads should be located at right angles to streams to prevent new stream channels from forming in vehicle tracks.

Flooding and wetness are severe limitations for urban use.

This Oaklimeter soil is in capability subclass IIw and in woodland suitability group 10W.

5—Gillsburg silt loam, occasionally flooded. This is a deep, somewhat poorly drained, nearly level soil on the flood plains. It formed in silty alluvium. Individual areas

Figure 6.—A combine harvesting corn on Oaklimeter silt loam, occasionally flooded.

range from 10 to 300 acres. The slopes range from 0 to 2 percent.

The typical sequence, depth, and composition of the layers of Gillsburg soil are as follows:

Surface layer:
0 to 7 inches; brown silt loam

Subsoil:
7 to 11 inches; brown silt loam
11 to 17 inches; mottled yellowish brown, brownish yellow and light brownish gray silt loam
17 to 43 inches; light brownish gray silt loam, yellowish brown mottles
43 to 65 inches or more; mottled light brownish gray and yellowish brown silty clay loam

Important soil properties of Gillsburg soil:

Permeability: Moderate in the surface layer and upper part of the subsoil and moderately slow in the lower part of the subsoil

Available water capacity: High

Soil reaction: Very strongly acid or strongly acid throughout except in areas where the surface layer has been limed

Surface runoff: Slow

Erosion hazard: Slight

Seasonal water table: At a depth of 1 foot to 1.5 feet in winter and early in spring

Flooding: Occasionally flooded for brief periods late in winter and early in spring

Root zone: Deep, but a seasonal high water table that fluctuates between a depth of 1 foot and 1.5 feet in winter and early in spring somewhat limits plant growth

Shrink-swell potential: Low

Tilth: Surface layer—friable; easily tilled throughout a wide range of moisture content; tends to crust and pack after heavy rains

Included with this soil in mapping are small areas of Arkabutla, Kirkville, Oaklimeter, and Tippo soils. Arkabutla, Kirkville, and Oaklimeter soils are on flood plains. Tippo soils are on stream terraces and flood plains. Also included are some soils that are mildly alkaline in some parts of the subsoil. These soils are on flood plains.

Most of the acreage of this Gillsburg soil is used for row crops or pasture. A small acreage is used as woodland.

This soil is well suited to row crops and small grains. Seasonal wetness is the main limitation. Proper arrangement of rows and surface field ditches remove excess surface water. Returning crop residue to the soil improves tilth. Conservation tillage is beneficial. In the spring, seedbed preparation and cultivation of the soil are sometimes delayed because of wetness and flooding. After heavy rains in summer, crops in some low-lying areas are subject to moderate damage from flooding.

This soil is well suited to grasses and legumes for pasture and hay. Overgrazing or grazing when the soil is too wet causes surface compaction and poor tilth and reduces the rate of moisture infiltration. Proper stocking, pasture rotation, weed and brush control, and restricted use during wet periods help keep the pasture and soil in good condition.

This soil is well suited to loblolly pine, cherrybark oak, yellow-poplar, American sycamore, water oak, eastern cottonwood, green ash, and sweetgum. Concerns in woodland management are slight, but equipment use, seedling mortality, and plant competition are moderate concerns. Seasonal wetness and flooding are limitations that can be alleviated by harvesting during the drier periods. If pines are planted, site preparation is required to control competition from undesirable plants. Benefits of site preparation do not last longer than one growing season. Natural regeneration of hardwoods occurs without difficulty in all openings of one-half acre or more. If possible, logging roads should be located at right angles to streams to prevent new stream channels from forming in vehicle tracks.

Flooding and wetness are severe limitations for urban use.

This Gillsburg soil is in capability subclass IIw and in woodland suitability group 10W.

6—Oaklimeter-Gillsburg association, frequently flooded. This map unit consists of deep, moderately well drained and somewhat poorly drained, nearly level soils on the broad flood plains of Richland Creek and its major tributaries. These soils formed in silty alluvium. In places, the stream channels are shallow, and overbank flooding is frequent. The water from this flooded area flows into shallow sloughs, oxbow lakes, and abandoned channels. Uprooted trees, driftwood, and other debris and sediment deposits have partly clogged the natural drainage channels and have caused very slow runoff and the ponding of shallow water in low places. Oaklimeter soil is moderately well drained and mainly is on low relief ridges on the flood plain and on natural levees and other slightly raised areas between the stream channels and oxbow lakes. Gillsburg soil is somewhat poorly drained and is mainly in low positions on the flood plains. The soils in this map unit are in a regular and repeating pattern on the landscape. Individual areas are large enough to be mapped separately, but because of similar present or predicted uses, they were mapped as an association. The mapped areas range from 160 to more than 3,000 acres. The slopes range from 0 to 2 percent.

The Oaklimeter soil makes up about 53 percent of the map unit. The Gillsburg soil makes up about 29 percent. The included soils make up about 18 percent.

The typical sequence, depth, and composition of the layers of Oaklimeter soil are as follows:

Surface layer:
0 to 3 inches; brown silt loam

Subsoil:
3 to 14 inches; yellowish brown silt loam
14 to 22 inches; yellowish brown silt loam, pale brown and light brownish gray mottles
22 to 29 inches; brown silt loam mottled in gray and brown
29 to 60 inches; mottled gray and brown silt loam

Important soil properties of Oaklimeter soil:

Permeability: Moderate

Available water capacity: High

Soil reaction: Very strongly acid or strongly acid throughout

Surface runoff: Slow

Erosion hazard: Slight

Seasonal water table: At a depth of 1.5 to 2.5 feet in winter and early in spring

Flooding: Frequently flooded for brief to long periods following heavy rains, especially in winter and early in the spring

Root zone: Deep, but a seasonal high water table commonly at a depth of 1.5 to 2 feet during winter and early in spring somewhat limits plant growth

Shrink-swell potential: Low

Tilth: Surface layer—friable; easily tilled throughout a wide range of moisture content; tends to crust and pack after heavy rains

The typical sequence, depth, and composition of the layers of Gillsburg soil are as follows:

Surface layer:
0 to 3 inches; brown silt loam

Subsoil:
3 to 17 inches; dark yellowish brown silt loam, gray mottles in the lower part
17 to 28 inches; light brownish gray silt loam, yellowish brown mottles
28 to 44 inches; silt loam mottled in shades of gray and brown
44 to 60 inches; grayish brown silt loam mottled in light olive brown

Important soil properties of Gillsburg soil:

Permeability: Moderate in the upper part of the subsoil and moderately slow in the lower part

Available water capacity: High

Soil reaction: Very strongly acid or strongly acid throughout

Surface runoff: Slow

Erosion hazard: Slight

Seasonal water table: At a depth of 1 foot to 1.5 feet in winter and early in spring

Flooding: Frequently flooded for brief to long periods following heavy rains, especially late in winter and early in the spring

Root zone: Deep, but a seasonal high water table that fluctuates between a depth of 1 foot and 1.5 feet in winter and early in spring somewhat limits root penetration

Shrink-swell potential: Low

Tilth: Surface—friable; easily tilled throughout a wide range of moisture content; tends to crust and pack after heavy rains

Included with these soils in mapping are Cascilla, Kirkville, and Arkabutla soils and some small areas of Tippo and Leverett soils. On the flood plains are Cascilla and Kirkville soils bordering old channels and Arkabutla soils in overflow runs. Tippo soils are on stream terraces and flood plains. Leverett soils are on low stream terraces. Also included are some small areas of soils that are mildly alkaline in the subsoil. These soils are on flood plains.

Most areas of Oaklimeter and Gillsburg soils are used as woodland. Some small acreages, used for crops and pasture, are in slightly raised areas that are flooded less frequently.

The soils in this map unit are poorly suited to row crops and small grains because of wetness and flooding, which can be alleviated only by a major flood control system and by a land drainage system. If these soils are used for crops, surface field ditches and proper arrangement of rows are needed to facilitate drainage. Conservation tillage is beneficial. Returning crop residue to the soil will improve tilth.

The soils in this map unit are moderately suited to grasses and legumes for hay and pasture. Wetness limits the choice of plants and restricts grazing. Overgrazing or grazing when the soil is too wet causes surface compaction and poor tilth and reduces the rate of moisture infiltration. Proper stocking, controlled grazing, and weed and brush control will help maintain good tilth and reduce compaction.

These soils are well suited to cherrybark oak, loblolly pine, eastern cottonwood, green ash, sweetgum, water oak, American sycamore, and yellow-poplar (fig. 7). In addition, Oaklimeter soil is well suited to Nuttall oak and willow oak, and Gillsburg soil is well suited to American sycamore. Wetness is a moderate limitation to use of equipment on Oaklimeter soil and is a severe limitation on Gillsburg soil. Seedling mortality and plant competition are moderate on Oaklimeter and Gillsburg soils. Windthrow is a slight hazard, and other limitations are slight.

Seasonal wetness and flooding restrict the use of equipment, but these limitations can be alleviated by harvesting during the drier periods. If pines are planted, site preparation is required to control competition from undesirable plants. Benefits of site preparation do not extend beyond one growing season. Natural regeneration of hardwoods occurs without difficulty in openings of one-half acre or more. If possible, logging

Figure 7.—This stand of hardwood timber is in an area of Oaklimeter-Gillsburg association, frequently flooded.

roads should be located at right angles to streams to prevent new stream channels from forming in vehicle tracks.

Flooding and seasonal wetness are severe limitations for urban use.

The soils in this map unit are in capability subclass IVw. Oaklimeter soil is in woodland suitability group 10W, and Gillsburg soil is in woodland suitability group 10W.

7—Kirkville fine sandy loam, occasionally flooded. This is a deep, moderately well drained, nearly level soil on the flood plains. It formed in loamy alluvial sediment. Individual areas range from 10 to 160 acres. The slopes range from 0 to 2 percent.

The typical sequence, depth, and composition of the layers of Kirkville soil are as follows:

Surface layer:
0 to 5 inches; brown fine sandy loam

Subsoil:
5 to 22 inches; brown loam, dark yellowish brown and pale brown mottles
22 to 47 inches; loam mottled in shades of brown and gray
47 to 71 inches; light brownish gray loam, mottles in shades of brown

Important soil properties of Kirkville soil:

Permeability: Moderate

Available water capacity: Moderate

Soil reaction: Very strongly acid or strongly acid throughout except in areas where the surface layer has been limed

Surface runoff: Slow

Erosion hazard: Slight

Seasonal water table: At a depth of 1.5 to 2.5 feet in winter and early in spring

Flooding: Occasionally flooded for brief periods following heavy rains late in winter and early in the spring

Root zone: Deep, but a seasonal high water table that commonly fluctuates between a depth of 1.5 and 2.5 feet in winter and early in spring somewhat limits plant growth

Shrink-swell potential: Low

Tilth: Surface layers—friable; easily tilled throughout a wide range of moisture content; surface compaction and crusting after heavy rains

Included with this soil in mapping are small areas of Arkabutla, Gillsburg, Oaklimeter, and Quitman soils. Arkabutla, Gillsburg, and Oaklimeter soils are on flood plains, and Quitman soils are on terraces. Also included are soils in sloughs and old channels that are under water except during prolonged dry periods.

Most of the acreage of this Kirkville soil is used for row crops or pasture. A small acreage is used as woodland.

This soil is well suited to row crops and small grains. Row crops can be grown every year if good management practices are used. Seasonal wetness is the main limitation. Proper arrangement of rows and surface field ditches remove excess surface water from low-lying areas. Returning crop residue to the soil improves tilth. Conservation tillage is beneficial. In the spring, seedbed preparation and the cultivation of the soil are sometimes delayed because of wetness and flooding. This soil is subject to flooding in winter and early in the spring before crops are planted. In wet years, flooding during the growing season can damage the crops.

This soil is well suited to grasses and legumes for pasture and hay. Overgrazing or grazing when the soil is too wet causes surface compaction and poor tilth and reduces the rate of moisture infiltration. Proper stocking, pasture rotation, and restricted use during wet periods help keep the pasture and soil in good condition.

This soil is well suited to loblolly pine, yellow-poplar, cherrybark oak, sweetgum, water oak, and eastern cottonwood. Concerns in woodland management are slight, but seedling mortality, equipment use, and plant competition are moderate concerns. Seasonal wetness and flooding are limitations that can be alleviated by harvesting during the drier periods. If pines are planted, site preparation is required to control competition from undesirable plants. Benefits of site preparation do not extend beyond one growing season. Natural regeneration of hardwoods occurs without difficulty in openings of one-half acre or more. If possible, logging roads should be located at right angles to streams to prevent new stream channels from forming in vehicle tracks.

Flooding and wetness are severe limitations for urban use.

This Kirkville soil is in capability subclass IIw and in woodland suitability group 10W.

8—Urbo silty clay loam, occasionally flooded. This is a deep, somewhat poorly drained, nearly level soil on the flood plains. It formed in clayey alluvium. Individual areas range from 10 to more than 150 acres. The slopes range from 0 to 2 percent.

The typical sequence, depth, and composition of the layers of Urbo soil are as follows:

Surface layer:
0 to 4 inches; dark grayish brown silty clay loam

Subsurface layer:
4 to 10 inches; brown silty clay loam, dark yellowish brown and pale brown mottles

Subsoil:
10 to 18 inches; brown silty clay loam mottled in shades of brown and gray
18 to 36 inches; light brownish gray silty clay mottled in shades of brown
36 to 61 inches; light brownish gray and grayish brown silty clay mottled in shades of brown

Important soil properties of Urbo soil:

Permeability: Very slow

Available water capacity: High

Soil reaction: Very strongly acid or strongly acid throughout except in areas where the surface layer has been limed

Surface runoff: Slow

Erosion hazard: Slight

Seasonal water table: At a depth of 1 foot to 2 feet during wet periods in winter and early in the spring

Flooding: Occasional flooding for brief periods following heavy rains

Root zone: Deep, but a seasonal high water table limits plant growth

Shrink-swell potential: Moderate

Tilth: Good; surface layer—can be tilled throughout a fairly wide range of moisture content; surface compaction and crusting after heavy rains

Included with this soil in mapping are small areas of Arkabutla and Gillsburg soils. These soils are on the flood plains. Also included are a few small areas of soils on lower elevations that are flooded for a long duration late in winter and early in the spring and areas of soils in sloughs and old channels that are under water except during prolonged dry periods.

Most of the acreage of this Urbo soil is used for row crops or pasture. A small acreage is used as woodland.

This soil is well suited to row crops and small grains. Seasonal wetness is the main limitation. Proper arrangement of rows and surface field ditches remove excess surface water. Returning crop residue to the soil improves tilth. Conservation tillage is beneficial. In the spring, seedbed preparation and cultivation of the soil are sometimes delayed because of wetness and flooding. This soil is subject to flooding in winter and early in the spring before crops are planted. After heavy rainfall in the summer, crops are subject to moderate flooding damage except in protected areas.

This soil is well suited to grasses and legumes for pasture and hay. Overgrazing or grazing when the soil is too wet causes surface compaction and poor tilth and reduces the rate of moisture infiltration. Proper stocking, pasture rotation, and restricted use during wet periods help keep the pasture and soil in good condition.

This soil is well suited to eastern cottonwood, sweetgum, American sycamore, yellow-poplar, cherrybark oak, green ash, and loblolly pine. Concerns in woodland management are slight, but equipment use and plant competition are moderate concerns. Windthrow is a moderate hazard on this soil. Seasonal wetness and flooding are moderate limitations that can be alleviated by harvesting during the drier periods. If pines are planted, site preparation is required to control competition from undesirable plants. Benefits of site preparation do not extend beyond one growing season. Natural regeneration of hardwoods occurs without difficulty in all openings of one-half acre or more. If possible, logging roads should be located at right angles to streams to prevent new stream channels from forming in vehicle tracks.

Flooding and wetness are severe limitations for urban use.

This Urbo soil is in capability subclass IIw and in woodland suitability group 11W.

9—Urbo-Arkabutla association, frequently flooded. This map unit consists of deep, nearly level, somewhat poorly drained soils on broad flood plains. The soils in this map unit are in a regular and repeating pattern on the landscape. Individual areas are large enough to be mapped separately, but because of similar present or predicted uses, they were mapped as an association. The mapped areas range from 1,200 acres to 10,000 acres. The slopes range from 0 to 2 percent. Urbo soil is on broad flats and in depressions. This soil formed in clayey alluvium. Arkabutla soil is on broad flats. It formed in silty alluvium.

Urbo soil and soils that are similar make up about 42 percent of the map unit. Arkabutla soils and soils that are similar make up about 34 percent. The included soils make up 24 percent.

The typical sequence, depth, and composition of the layers of Urbo soil are as follows:

Surface layer:
0 to 5 inches; dark grayish brown silty clay loam

Subsoil:
5 to 34 inches; grayish brown silty clay loam mottled in shades of brown
34 to 60 inches or more; gray silty clay mottled in shades of brown

Important soil properties of Urbo soil:

Permeability: Very slow

Available water capacity: High

Soil reaction: Very strongly acid or strongly acid

Surface runoff: Slow

Erosion hazard: Slight

Seasonal water table: At a depth of 1 foot to 1.5 feet during wet periods late in winter and early in the spring

Flooding: Frequent flooding for brief to long periods following heavy rains

Root zone: Deep, but a seasonal high water table commonly at a depth of 1 foot to 1.5 feet in winter and in spring limits plant growth

Shrink-swell potential: Moderate

Tilth: Good; surface layer—can be tilled throughout a fairly wide range of moisture content; surface compaction and crusting after heavy rains

The typical sequence, depth, and composition of the layers of Arkabutla soil are as follows:

Surface layer:
0 to 4 inches; dark brown silt loam

Subsoil:

4 to 14 inches; yellowish brown silt loam, grayish brown mottles
14 to 23 inches; grayish brown silt loam, yellowish brown mottles
23 to 31 inches; light brownish gray silt loam, yellowish brown mottles
31 to 55 inches; gray silt loam mottled in yellowish brown

Important soil properties of Arkabutla soil:

Permeability: Moderate

Available water capacity: High

Soil reaction: Very strongly acid or strongly acid

Surface runoff: Slow

Erosion hazard: Slight

Seasonal water table: Fluctuates between a depth of 1 foot and 2 feet of the surface in winter and early in the spring

Flooding: Frequent flooding for brief to long periods following heavy rains

Root zone: Deep, but the seasonal high water table limits plant growth

Shrink-swell potential: Low

Tilth: Surface layer—easily tilled throughout a wide range of moisture content; tends to crust and pack after heavy rains

Included with these soils in mapping are small areas of Cascilla, Gillsburg, Oaklimeter, Falkner, and Tippo soils. Cascilla soils are on old levees on the flood plains. Gillsburg and Oaklimeter soils are on the flood plains. Falkner and Tippo soils are on stream terraces.

Most areas of Urbo and Arkabutla soils are used as woodland.

The soils in this map unit are poorly suited to row crops and small grains because of frequent flooding and wetness. If these soils are used for crops, surface field ditches and proper arrangement of rows are needed to facilitate drainage. Conservation tillage is beneficial. Returning crop residue to the soil will improve tilth.

These soils are moderately suited to most grasses and legumes for hay and pasture. Wetness limits the choice of plants and restricts grazing. Overgrazing or grazing when the soil is too wet causes surface compaction and poor tilth and reduces the rate of moisture infiltration. Proper stocking, controlled grazing, and weed and brush control help keep the soil and pasture in good condition.

These soils are well suited to cherrybark oak, eastern cottonwood, green ash, sweetgum, water oak, American sycamore, and loblolly pine. In addition, Arkabutla soils are well suited to Nuttall oak and water oak, and Urbo soils are well suited to yellow-poplar. Concerns in woodland management on Urbo soils are moderate, but equipment use is a severe concern. The hazard of erosion is a slight concern. Windthrow and erosion are slight hazards on Arkabutla soil. The use of equipment is a severe limitation because of wetness and flooding. Wetness and flooding also causes a high rate of seedling mortality. If pines are planted, site preparation is required to control competition from less desirable plants. Benefits of site preparation do not extend beyond one growing season. Natural regeneration of hardwoods occurs without difficulty in all openings of one-half acre or more. Harvesting should be done during the drier periods. Logging roads should be placed at right angles to streams to prevent new watercourses from forming.

Flooding and wetness are severe limitations for urban use.

The soils in this map unit are in capability subclass IVw. Urbo soil is in woodland suitability group 11W, and Arkabutla soil is in woodland suitability group 12W.

12A—Cahaba fine sandy loam, 0 to 2 percent slopes. This deep, well drained, nearly level soil is on stream terraces. It formed in loamy and sandy alluvium. Individual areas range from 5 to 40 acres.

The typical sequence, depth, and composition of the layers of Cahaba soil are as follows:

Surface layer:
0 to 6 inches; dark yellowish brown fine sandy loam

Subsoil:
6 to 15 inches; yellowish red clay loam
15 to 41 inches; yellowish red loam

Substratum:
41 to 66 inches; yellowish brown loamy sand grading to light yellowish brown
66 to 75 inches or more; brown stratified loamy sand and sandy loam

This slightly eroded soil has a few rills. In a few areas, evidence of accelerated erosion is in the surface layer but not enough to greatly modify the thickness and the characteristics of the original plow layer.

Important soil properties of Cahaba soil:

Permeability: Moderate

Available water capacity: Moderate to high

Soil reaction: Very strongly acid to medium acid throughout except in areas where the surface layer has been limed

Surface runoff: Slow

Erosion hazard: Slight

Seasonal water table: None within a depth of 6 feet

Root zone: Deep, easily penetrated by plant roots

Flooding: Rare

Shrink-swell potential: Low

Tilth: Surface layer—friable; easily tilled throughout a wide range of moisture content; tends to crust and pack after heavy rains

Included with this soil in mapping are small areas of Savannah, Leverett, and Quitman soils. Savannah soils are on the uplands, and Leverett and Quitman soils are on stream terraces. Also included are a few small areas that are not subject to flooding.

Most of the acreage of this Cahaba soil is used for row crops and pasture. The rest of the acreage is used as woodland.

This soil is well suited to row crops and small grains. Conservation tillage and proper arrangement of rows are beneficial. Returning crop residue to the soil helps maintain tilth.

This soil is well suited to grasses and legumes for hay and pasture. Proper stocking, controlled grazing, and weed and brush control help keep the soil and pasture in good condition. Restricted use during wet periods reduces surface compaction.

This soil is well suited to loblolly pine, yellow-poplar, and sweetgum. Concerns in woodland management are slight, but plant competition is a moderate concern.

Rare flooding is a severe limitation for urban use.

This Cahaba soil is in capability class I and in woodland suitability group 9A.

17—Tippo-Urban land complex, 0 to 2 percent slopes. This complex consists of deep, somewhat poorly drained, nearly level soils on low stream terraces and flood plains. Tippo soil formed in silty alluvium. Areas of Tippo soil and Urban land are so intermingled that it was not practical to map them separately. The mapped areas range from 20 to 150 acres.

Tippo soil and soils that are similar make up about 40 percent of this map unit. Urban land makes up about 35 percent. The included soils make up about 25 percent.

The typical sequence, depth, and composition of the layers of Tippo soil are as follows:

Surface layer:

0 to 3 inches; dark grayish brown silt loam

Subsoil:

3 to 11 inches; pale brown silt loam, mottles of brownish gray

11 to 23 inches; silt loam mottled in shades of brown and gray

23 to 29 inches; grayish brown silt loam, slightly brittle

29 to 68 inches; silt loam mottled in shades of brown and gray

68 to 80 inches; yellowish brown silt loam mottled in shades of gray

Important soil properties of Tippo soil:

Permeability: Moderate

Available water capacity: Very high

Soil reaction: Very strongly acid to medium acid except in areas where the surface layer has been limed

Surface runoff: Slow

Erosion hazard: Slight

Seasonal water table: At a depth of 1.5 to 2.5 feet in the winter and early in the spring

Flooding: Protected by 'evees. Rare flooding in low places

Root zone: Deep, but a seasonal high water table at a depth of 1.5 to 2.5 feet during winter and early in spring limits plant growth

Shrink-swell potential: Low

Tilth: Good; surface layer—easily tilled throughout a wide range of moisture content; surface compaction and crusting after heavy rains

Included with these soils in mapping are small areas of Cahaba, Guyton, and Leverett soils. These soils are on stream terraces. Also included are a few areas of somewhat poorly drained and moderately well drained loamy soils on narrow flood plains.

Tippo soil is well suited to lawn grasses and ornamental plants. It is also well suited to native trees, such as loblolly pine, cherrybark oak, green ash, sweetgum, and yellow-poplar. This soil is well suited to vegetable plants.

Urban land consists of undisturbed soils and reworked soil material. Urban land is covered by houses, streets, light industry, commercial buildings, and parking lots (fig. 8).

Tippo soil is well suited to cherrybark oak, loblolly pine, green ash, sweetgum, and yellow-poplar.

Tippo soil has severe limitations for most urban uses and to use as septic tank absorption fields because of wetness and rare flooding. For local roads and streets, these limitations are moderate.

Figure 8.—This large industrial park in the city of Richland is in an area of Tippo-Urban land complex, 0 to 2 percent slopes. This area is protected from the floodwaters of the Pearl River by a levee.

This soil becomes saturated quickly when it rains and normally remains wet for fairly long periods. Water tends to pond in many areas after heavy rains. Wetness can be alleviated by a drainage system and by using fill material in the low places.

The soils in this map unit have not been assigned to a capability subclass or to a woodland suitability group.

21A—Leverett silt loam, 0 to 2 percent slopes. This is a deep, well drained, nearly level soil on low stream terraces. It formed in silty alluvium. Individual areas range from 10 to more than 200 acres.

The typical sequence, depth, and composition of the layers of Leverett soil are as follows:

Surface layer:
0 to 6 inches; yellowish brown silt loam

Subsoil:
6 to 18 inches; strong brown silt loam
18 to 37 inches; strong brown silt loam mottled in shades of brown
37 to 48 inches; yellowish brown silt loam mottled in shades of brown and gray
48 to 53 inches; yellowish brown silt loam, mottles in shades of gray and brown
53 to 65 inches; silt loam mottled in shades of gray and brown

This slightly eroded soil has a few rills. In a few areas, evidence of accelerated erosion is in the surface layer but not enough to greatly modify the thickness and the characteristics of the original plow layer.

Important soil properties of Leverett soil:

Permeability: Moderate

Available water capacity: High

Soil reaction: Very strongly acid to medium acid throughout, except in areas where the surface layer has been limed

Surface runoff: Slow

Erosion hazard: Slight

Seasonal water table: Perched water table at a depth of 2.5 to 3 feet late in winter and early in the spring

Flooding: None

Root zone: Deep, but a seasonal high water table at a depth of 2.5 to 3 feet in winter and early in spring limits plant growth

Shrink-swell potential: Low

Tilth: Surface layer—friable; easily tilled throughout a wide range of moisture content; tends to crust and pack after heavy rains

Included with this soil in mapping are small areas of Oaklimeter, Providence, and Tippo soils. Oaklimeter soils are on the flood plains. Providence soils are on adjacent stream terraces and uplands. Tippo soils are on low stream terraces.

Most of the acreage of this Leverett soil is used for row crops and pasture. The rest of the acreage is used as woodland.

This soil is well suited to row crops and small grains. Conservation tillage and returning crop residue to the soil improve tilth and reduce crusting and packing after heavy rains. In some places, proper arrangement of rows and surface field ditches are needed to remove surface water.

This soil is well suited to grasses and legumes for hay and pasture. Proper stocking, controlled grazing, and weed and brush control help keep the soil and pasture in good condition. Restricted use during wet periods reduces surface compaction.

This soil is moderately suited to cherrybark oak, sweetgum, yellow-poplar, and loblolly pine. Concerns in woodland management are slight.

These soils have slight limitations for most urban uses. Wetness is a moderate limitation to use for shallow excavations and dwellings with basements. Wetness is a severe limitation for the use of this soil as septic tank absorption fields.

This Leverett soil is in capability class I and in woodland suitability group 8A.

22A—Tippo silt loam, 0 to 2 percent slopes, occasionally flooded. This is a deep, somewhat poorly drained, nearly level soil on low stream terraces and flood plains. It formed in silty alluvium.

The typical sequence, depth, and composition of the layers of Tippo soil are as follows:

Surface layer:
0 to 5 inches; brown silt loam

Subsoil:
5 to 11 inches; yellowish brown silt loam, mottles in shades of brown and gray
11 to 17 inches; yellowish brown silt loam, mottles in shades of gray and yellow
17 to 22 inches; light brownish gray silt loam, mottles in shades of brown; slightly brittle
22 to 30 inches; brown silt loam, tongues of pale brown and light brownish gray silt
30 to 64 inches; silt loam mottled in shades of brown and gray

Important soil properties of Tippo soil:

Permeability: Moderate

Available water capacity: Very high

Soil reaction: Very strongly acid to medium acid throughout except in areas where the surface layer has been limed

Surface runoff: Slow

Erosion hazard: Slight

Seasonal water table: Perched water table at a depth of 1.5 to 2.5 feet during wet periods in winter and early in the spring

Flooding: Occasionally flooded for brief periods during winter and early in spring

Root zone: Deep, but a seasonal high water table at a depth of 1.5 to 2.5 feet during winter and early in spring limits plant growth

Shrink-swell potential: Low

Tilth: Surface layer—easily tilled throughout a wide range of moisture content; tends to crust and pack after heavy rains

Included with this soil in mapping are small areas of Gillsburg, Oaklimeter, Leverett, and Quitman soils. Gillsburg and Oaklimeter soils are on the flood plains. Leverett and Quitman soils are on stream terraces. Also included are a few small areas that are frequently flooded and some small areas that are rarely flooded.

Most of the acreage of this Tippo soil is used for row crops or pasture. A small acreage is used as woodland.

This soil is well suited to row crops and small grains. Seasonal wetness is the main limitation. Proper arrangement of rows and surface field ditches remove excess surface water. Returning crop residue to the soil improves tilth. Conservation tillage is beneficial. In the spring, seedbed preparation and cultivation of the soil are sometimes delayed because of wetness and flooding. This soil is subject to flooding in winter and

early in the spring before crops are planted. After heavy rainfall in the summer, crops are subject to moderate damage from flooding except in protected areas.

This soil is well suited to grasses and legumes for pasture or hay. Overgrazing or grazing when the soil is too wet causes surface compaction and poor tilth and reduces the rate of moisture infiltration. Proper stocking, controlled grazing, weed and brush control, and restricted use during wet periods help keep the pasture and soil in good condition.

This soil is well suited to loblolly pine, cherrybark oak, yellow-poplar, sweetgum, and green ash. Concerns in woodland management are slight, but equipment use and plant competition are moderate concerns. Seasonal wetness is a moderate limitation to use as woodland, but this limitation can be alleviated by harvesting during the drier periods. If pines are planted, site preparation is required to control competition from undesirable plants. Benefits of site preparation do not extend beyond one growing season. Natural regeneration of hardwoods occurs without difficulty in all openings of one-half acre or more. If possible, logging roads should be placed at right angles to streams to prevent new stream channels from forming in vehicle tracks.

Flooding and wetness (fig. 9) are severe limitations for urban use.

This Tippo soil is in capability subclass IIw and in woodland suitability group 6W.

23—Guyton silt loam, occasionally flooded. This is a deep, poorly drained, nearly level soil on low stream terraces and flood plains. It formed in silty alluvium. Individual areas range from 5 to 150 acres. The slopes range from 0 to 1 percent.

The typical sequence, depth, and composition of the layers of Guyton soil are as follows:

Surface layer:
0 to 1 inch; grayish brown silt loam

Subsurface:

Figure 9.—Flooding is a hazard for small commercial buildings on Tippo silt loam, 0 to 2 percent slopes, occasionally flooded.

1 to 12 inches; light brownish gray silt loam that has light yellowish brown mottles
12 to 21 inches; light brownish gray silt loam that has yellowish brown mottles

Subsoil:
21 to 65 inches; light brownish gray silt loam and silt clay loam, mottles in shades of brown

Important soil properties of Guyton soil:

Permeability: Slow

Available water capacity: High

Soil reaction: Extremely acid to strongly acid in the surface layer and upper part of the subsoil except in areas where the surface layer has been limed; strongly acid to neutral in the lower part of the subsoil

Surface runoff: Very slow

Erosion hazard: Slight

Seasonal water table: Near or at a depth of 1.5 feet late in winter and early in the spring

Flooding: Occasionally flooded for brief periods following heavy rains, especially late in winter and early in spring

Root zone: Deep, but a seasonal high water table at or near the surface in winter to the middle of spring limits plant growth

Shrink-swell potential: Low

Tilth: Good; surface layer—can be tilled throughout a fairly wide range of moisture content; surface compaction and crusting after heavy rains

Included with this soil in mapping are small areas of Leverett and Tippo soils. Leverett soils are on low stream terraces, and Tippo soils are on flood plains and stream terraces. Also included are small areas of soils in sloughs and drainageways in which water ponds much of the time.

Most of the acreage of this Guyton soil is used as woodland. Some areas are used for pasture and hay, and a small acreage is used for crops.

This soil is poorly suited to row crops and small grains because of wetness and flooding. These limitations can be alleviated by a major flood control system and a planned drainage system.

This soil is moderately suited to grasses and legumes for hay and pasture. Wetness limits the choice of plants. During periods of wetness, cutting or grazing should be deferred. Overgrazing or grazing when the soil is too wet causes surface compaction and poor tilth and reduces the rate of moisture infiltration. Proper stocking, controlled grazing, and weed and brush control help keep the soil and pasture in good condition. If the soil is used for crops, surface field ditches and proper arrangement of rows are needed to facilitate drainage. Conservation tillage is beneficial. Returning of crop residue to the soil will improve tilth.

This soil is well suited to loblolly pine, green ash, water oak, sweetgum, and southern red oak. The hazard of erosion is a slight concern in woodland management, the limitation to use of equipment is a severe concern, and seedling mortality is a moderate concern. Seasonal wetness and flooding are severe limitations that can be alleviated by harvesting during the drier periods. If pine trees are planted, site preparation is needed to control competition from undesirable plants. Benefits of site preparation do not extend beyond one growing season. Natural regeneration of hardwoods occurs without difficulty in openings of one-half acre or more.

Flooding and wetness are severe limitations for urban use.

This Guyton soil is in capability subclass IVw and in woodland suitability group 9W.

25A—Quitman loam, 0 to 2 percent slopes. This is a deep, moderately well drained, nearly level soil on uplands and stream terraces. Some areas of this soil are on terraces that border stream channels. Quitman soil formed in marine or fluvial loamy sediment. Individual areas range from 10 to 1,500 acres.

The typical sequence, depth, and composition of the layers of Quitman soil are as follows:

Surface layer:
0 to 5 inches; dark brown loam

Subsurface layer:
5 to 9 inches; yellowish brown loam that has pale brown mottles

Subsoil:
9 to 20 inches; yellowish brown loam that has light brownish gray mottles
20 to 44 inches; pale brown loam that has light brownish gray and strong brown mottles; slightly brittle
44 to 51 inches; strong brown loam that has light brownish gray, gray, and brownish yellow mottles; slightly brittle
51 to 65 inches or more; pale brown loam that has light brownish gray and strong brown mottles; slightly brittle

This slightly eroded soil has a few rills. In a few areas, evidence of accelerated erosion is in the surface layer

but not enough to greatly modify the thickness and characteristics of the original plow layer.

Important soil properties of Quitman soil:

Permeability: Moderate in the surface layer and upper part of the subsoil and moderately slow in the lower part

Available water capacity: Moderate

Soil reaction: Very strongly acid to strongly acid throughout except in areas where the surface layer has been limed

Surface runoff: Slow

Erosion hazard: Slight

Seasonal water table: Perched water table at a depth of 1.5 to 2 feet during wet periods

Flooding: None

Root zone: Deep, but a seasonal high water table limits plant growth

Shrink-swell potential: Low

Tilth: Surface layer—friable; easily tilled throughout a wide range of moisture content; tends to crust and pack after heavy rains

Included with this soil in mapping are small areas of Savannah and Tippo soils. Savannah soils are in slightly higher positions on the uplands and stream terraces than Quitman soil. Tippo soils are on broad flats and in heads of drainageways. Also included are small areas of soils that are subject to flooding and some somewhat poorly drained soils on stream terraces.

Most of the acreage of this Quitman soil is used for row crops and pasture. The rest of the acreage is used as woodland.

This soil is well suited to row crops and small grains. Conservation tillage and returning crop residue to the soil improve tilth and reduce crusting and packing after heavy rains. In some places, proper arrangement of rows and surface field ditches are needed to remove surface water.

This soil is well suited to grasses and legumes for hay and pasture. Overgrazing and grazing when the soil is too wet causes surface compaction and poor tilth and reduces the rate of moisture infiltration. Proper stocking, controlled grazing, and weed and brush control help keep the soil and pasture in good condition.

This soil is well suited to loblolly pine, water oak, American sycamore, yellow-poplar, and sweetgum. Concerns in woodland management are slight, but equipment use is a moderate concern. Seasonal wetness is a moderate concern in woodland management for harvesting the tree crop. This concern can be alleviated by harvesting during the dry periods.

Wetness is a moderate limitation for urban use. Wetness and low strength as it affects local roads and streets are moderate limitations. Wetness is a severe limitation for shallow excavations and dwellings with basements and for use of this soil as septic tank absorption fields.

This Quitman soil is in capability subclass IIw and in woodland suitability group 10W.

25B—Quitman loam, 2 to 5 percent slopes. This is a deep, moderately well drained, gently sloping soil on uplands and stream terraces. It formed in marine or fluvial loamy sediment. Individual areas range from 10 to more than 50 acres.

The typical sequence, depth, and composition of the layers of Quitman soil are as follows:

Surface layer:
0 to 5 inches; brown loam

Subsurface layer:
5 to 13 inches; yellowish brown loam, mottles in shades of yellow and gray

Subsoil:
13 to 24 inches; yellowish brown loam, mottles in shades of brownish yellow and light brownish gray
24 to 65 inches; mottled yellowish brown, brownish yellow, and light brownish gray clay loam; slightly brittle

This slightly eroded soil has a few rills. In a few areas, evidence of accelerated erosion is in the surface layer but not enough to greatly modify the thickness and characteristics of the original plow layer.

Important soil properties of Quitman soil:

Permeability: Moderate in the surface layer and upper part of the subsoil and moderately slow in the lower part of the subsoil

Available water capacity: Moderate

Soil reaction: Very strongly acid or strongly acid throughout except in areas where the surface layer has been limed

Surface runoff: Slow or medium

Erosion hazard: Moderate

Seasonal water table: Perched water table at a depth of 1.5 to 2 feet during wet periods

Flooding: None

Root zone: Deep, but a seasonal high water table at a depth 1.5 to 2 feet during winter and early in spring limits plant growth

Shrink-swell potential: Low

Tilth: Surface layer—friable; easily tilled throughout a wide range of moisture content; tends to crust and pack after heavy rains

Included with this soil in mapping are small areas of Savannah soils on uplands. Also included are some small areas of somewhat poorly drained soils on stream terraces.

Most of the acreage of this Quitman soil is used for row crops or pasture. A small acreage is used as woodland.

This soil is well suited to row crops and small grains. If used for row crops, conservation practices, such as maintaining an adequate cropping system, conservation tillage, contour farming, grassed waterways and terraces, and returning crop residue to the soil should be used to help control erosion. Cultivated crops that produce large amounts of residue reduce crusting and packing and help control erosion. Returning crop residue to the soil improves tilth.

This soil is well suited to grasses and legumes for hay and pasture. Using this soil for hay and pasture effectively controls erosion. The erosion hazard increases if row crops are grown. Overgrazing or grazing when the soil is too wet causes surface compaction and poor tilth and reduces the rate of moisture infiltration. Proper stocking and controlled grazing help keep the pasture and soil in good condition.

This soil is well suited to loblolly pine, water oak, American sycamore, yellow-poplar, and sweetgum. Most concerns in woodland management are slight but the limitation for equipment use is a moderate concern. Seasonal wetness is a moderate concern in woodland management for harvesting the tree crop.

Wetness is a moderate limitation for urban use. Wetness and low strength are moderate limitations that affect local roads and streets. Wetness is a severe limitation to use of this soil for shallow excavations and dwellings with basements, and to use as septic tank absorption fields.

This Quitman soil is in capability subclass IIe and in woodland suitability group 10W.

35B2—Tippah silt loam, 2 to 5 percent slopes, eroded. This is a deep, moderately well drained, gently sloping soil on upland ridgetops. It formed in a mantle of silty material and the underlying clayey material. Individual areas range from 10 to 80 acres.

The typical sequence, depth, and composition of the layers of Tippah soil are as follows:

Surface layer:
0 to 5 inches; dark grayish brown silt loam

Subsurface layer:
5 to 8 inches; yellowish brown silt loam that has pale brown mottles

Subsoil:
8 to 21 inches; yellowish red silty clay loam
21 to 25 inches; strong brown silty clay loam that has red and light brownish gray mottles
25 to 41 inches; mottled strong brown, light brownish gray, and brown clay loam
41 to 50 inches; mottled grayish brown, light brownish gray, yellowish brown, and red clay
50 to 65 inches; grayish brown clay that has few red mottles

In most areas of this eroded soil, part of the original surface layer has been removed by erosion, and the remaining topsoil and subsoil have been mixed by tillage. In some small areas, the plow layer is the original topsoil; and in other areas, the plow layer is mainly the subsoil. In some areas are a few rills and shallow gullies.

Important soil properties of Tippah soil:

Permeability: Moderate in the surface layer and the upper part of the subsoil; slow in the lower part of the subsoil

Available water capacity: High

Soil reaction: Very strongly acid to medium acid throughout except in areas where the surface layer has been limed

Surface runoff: Slow or medium

Erosion hazard: Moderate

Seasonal water table: Perched water table at a depth of 2 to 2.5 feet during wet periods in winter and early in the spring

Flooding: None

Root zone: Deep, but the clayey lower part of the subsoil somewhat hampers root penetration

Shrink-swell potential: High

Tilth: Surface layer—friable; easily tilled throughout a wide range of moisture content; tends to crust and pack after heavy rains

Included with this soil in mapping are small areas of Falkner, Providence, and Kisatchie soils. Falkner and Providence soils are on uplands and stream terraces. Kisatchie soils are on uplands. Also included are small areas of soils that are similar to the Tippah soil. These

soils are on uplands. Reaction ranges from neutral to moderately alkaline in the lower part of the subsoil of these similar soils.

Most of the acreage of this Tippah soil is used for row crops or pasture. A small acreage is used as woodland.

This soil is well suited to row crops and small grains. If used for row crops, conservation practices, such as maintaining an adequate cropping system, conservation tillage, contour farming, grassed waterways and terraces should be used to help control erosion. Cultivated crops that produce large amounts of residue reduce crusting and packing and help control erosion.

This soil is well suited to grasses and legumes for hay and pasture (fig. 10). Using this soil for hay and pasture effectively controls erosion. The erosion hazard increases if row crops are grown. Overgrazing or grazing when the soil is too wet causes surface compaction and poor tilth and reduces the rate of moisture infiltration. Proper stocking and controlled grazing help keep the pasture and soil in good condition.

This soil is moderately suited to loblolly pine, Shumard oak, cherrybark oak, white oak, yellow-poplar, and sweetgum. Concerns in woodland management are slight, but plant competition is a moderate concern. If pines are planted, site preparation is needed to control competition from undesirable plants. Benefits of site preparation do not extend beyond one growing season.

The high shrink-swell potential and wetness of this soil are severe limitations for urban use. Low strength as it affects local roads and streets is a severe limitation. Wetness and shrink-swell potential of the subsoil are moderate limitations for small commercial buildings. Special design and proper installation can help alleviate these limitations. The slow permeability in the clayey lower part of the subsoil is a severe limitation to use of this soil as septic tank absorption fields, but this limitation can be alleviated by enlarging the absorption fields.

This Tippah soil is in capability subclass IIe and in woodland suitability group 9A.

Figure 10.—These calves are grazing a pasture of ryegrass and clover in an area of Tippah silt loam, 2 to 5 percent slopes, eroded.

35C2—Tippah silt loam, 5 to 8 percent slopes, eroded. This is a moderately well drained, sloping soil on hillsides and ridgetops on uplands. It formed in a mantle of silty material underlain by clayey material. Individual areas range from 10 to 160 acres or more.

The typical sequence, depth, and composition of the layers of Tippah soil are as follows:

Surface layer:
0 to 5 inches; dark brown silt loam

Subsoil:
5 to 23 inches; yellowish red silt loam
23 to 45 inches; clay mottled in shades of brown, red, and gray
45 to 65 inches; light brownish gray clay that has red and brown mottles

In most areas of this eroded soil, part of the original surface layer has been removed by erosion, and the remaining topsoil and subsoil have been mixed by tillage. In some small areas, the plow layer is the original topsoil; and in other areas, the plow layer is mainly the subsoil. In some areas are a few rills and shallow gullies.

Important soil properties of Tippah soil:

Permeability: Moderate in the surface layer and upper part of the subsoil; slow in the lower part of the subsoil

Available water capacity: High

Soil reaction: Very strongly acid to medium acid throughout except in areas where the surface layer has been limed

Surface runoff: Medium

Erosion hazard: Moderate to severe

Seasonal water table: Perched water table at a depth of 2 to 2.5 feet during wet periods in winter and early in the spring

Flooding: None

Root zone: Deep, but the clayey lower part of the subsoil somewhat hampers root penetration

Shrink-swell potential: High

Tilth: Surface layer—friable; easily tilled throughout a wide range of moisture content; tends to crust and pack after heavy rains

Included with this soil in mapping are small areas of Falkner, Providence, and Kisatchie soils. Falkner and Providence soils are on uplands and stream terraces, Kisatchie soils are on uplands. Also included are soils that are similar to Tippah soils. These soils are on uplands. Reaction in the lower part of the subsoil of these similar soils ranges from neutral to moderately alkaline.

Most of the acreage of this Tippah soil is used for row crops or pasture. A small acreage is used as woodland.

It is moderately suited to row crops and small grains. If used for row crops, conservation practices, such as maintaining an adequate cropping system, conservation tillage, contour farming, contour stripcropping, grassed waterways and terraces (fig. 11) should be used to help control erosion. Cultivated crops that produce large amounts of residue reduce crusting and packing and help control erosion.

This soil is well suited to grasses and legumes for hay and pasture. Using this soil for hay and pasture effectively controls erosion. The erosion hazard increases if row crops are grown. Overgrazing or grazing when the soil is too wet causes surface compaction and poor tilth and reduces the rate of moisture infiltration. Proper stocking and controlled grazing help keep the pasture and soil in good condition.

This soil is moderately suited to loblolly pine, yellow-poplar, Shumard oak, sweetgum, white oak, and cherrybark oak. Concerns in woodland management are slight, but plant competition is a moderate concern. If pines are planted, site preparation is needed to control competition from undesirable plants. Benefits of site preparation do not extend beyond one growing season.

The high shrink-swell potential and wetness of this soil are severe limitations for urban use. Low strength as it affects local roads and streets is a severe limitation. Wetness and the shrink-swell potential of the subsoil are moderate limitations for small commercial buildings. Special design and proper installation can alleviate these limitations. The slow permeability in the clayey lower part of the subsoil is a severe limitation to use of this soil as septic tank absorption fields, but this limitation can be alleviated by enlarging the absorption fields.

This Tippah soil is in capability subclass IIIe and in woodland suitability group 9A.

35D2—Tippah silt loam, 8 to 12 percent slopes, eroded. This is a deep, moderately well drained, strongly sloping soil on hillsides dissected by small drainageways on the uplands. It formed in a mantle of silty material and the underlying clayey material. Individual areas range from 10 to 100 acres.

The typical sequence, depth, and composition of the layers of Tippah soil are as follows:

Surface layer:
0 to 7 inches; dark brown silt loam

Subsoil:
7 to 26 inches; strong brown silty clay loam

Figure 11.—This terrace is being constructed in an area of Tippah silt loam, 5 to 8 percent slopes, eroded.

26 to 59 inches; strong brown clay that has red and light brownish gray mottles in the lower part
59 to 73 inches or more; mottled brown and gray clay

In most areas of this eroded soil, part of the original surface layer has been removed by erosion, and the remaining topsoil and subsoil have been mixed by tillage. In some small areas, the plow layer is the original topsoil; and in other areas, the plow layer is mainly the subsoil. In some areas are a few rills and shallow gullies.

Important soil properties of Tippah soil:

Permeability: Moderate in the surface layer and upper part of the subsoil; slow in the lower part of the subsoil

Available water capacity: High

Soil reaction: Very strongly acid to medium acid throughout except in areas where the surface layer has been limed

Surface runoff: Rapid

Erosion hazard: Severe

Seasonal water table: Perched water table at a depth of 2 to 2.5 feet during wet periods in winter and early in the spring

Flooding: None

Root zone: Deep, but the clayey lower part of the subsoil somewhat hampers root penetration

Shrink-swell potential: High

Tilth: Surface layer—friable; easily tilled throughout a wide range of moisture content; tends to crust and pack after heavy rains

Included with this soil in mapping are small areas of Maben, Ora, Providence, and Smithdale soils. These soils are on the uplands. Also included are some small areas of soils that are on uplands but are neutral to moderately alkaline in the lower part of the subsoil.

Most of the acreage of this Tippah soil is used for pasture. A small acreage is used as woodland.

This soil is poorly suited to row crops and small grains because of the severe erosion hazard, rapid runoff, and steepness of slope. If used for row crops, conservation practices, such as conservation tillage, rotation of grasses and legumes, contour stripcropping, returning crop residue to the soil, minimum tillage, contour farming, and terraces should be used.

This soil is moderately suited to grasses and legumes for hay and pasture. Using this soil for hay and pasture effectively controls erosion. The erosion hazard increases if row crops are grown. Overgrazing or grazing when the soil is too wet causes surface compaction and poor tilth and reduces the rate of moisture infiltration. Proper stocking and controlled grazing help keep the pasture and soil in good condition.

This soil is moderately suited to loblolly pine, yellow-poplar, Shumard oak, sweetgum, white oak, and cherrybark oak. Most concerns in woodland management are slight, but plant competition is a moderate concern. If pines are planted, site preparation is needed to control competition from undesirable plants. Benefits of site preparation do not extend beyond one growing season.

This soil has severe limitations for urban use. Low strength as it affects local streets and roads, high shrink-swell potential, and steepness of slope are the main limitations. Special design and proper installation can alleviate these limitations. Wetness and the slow permeability in the clayey lower part of the subsoil are severe limitations for use of this soil as septic tank absorption fields. This can be alleviated by enlarging the absorption fields.

This Tippah soil is in capability subclass IVe and in woodland suitability group 9A.

36B—Kipling-Urban land complex, 2 to 8 percent slopes. This complex consists of deep, somewhat poorly drained, gently sloping to sloping soils on upland. Kipling soil formed in clayey material. Areas of Kipling soil and Urban land are so intermingled that it was not practical to map them separately. The mapped areas range from 40 to 300 acres.

Kipling soil makes up about 45 percent of this map unit. Urban land makes up about 35 percent. The included soils make up 20 percent.

The typical sequence, depth, and composition of the layers of Kipling soil are as follows:

Surface layer:
0 to 4 inches; yellowish brown silt loam

Subsoil:
4 to 10 inches; strong brown silty clay loam, mottles in light brownish gray
10 to 35 inches; yellowish brown silty clay that has yellowish red and light brownish gray mottles
35 to 43 inches; light olive brown silty clay that has light brownish gray mottles

Substratum:
43 to 64 inches or more; light olive brown silty clay that has grayish brown mottles.

Important soil properties of Kipling soil:

Permeability: Very slow

Available water capacity: Very high

Soil reaction: Very strongly acid to medium acid in the surface layer and upper part of the subsoil except in areas where the surface layer has been limed; very strongly acid to moderately alkaline in the lower part of the subsoil; and strongly acid to moderately alkaline in the substratum

Surface runoff: Slow or medium

Erosion hazard: Moderate

Seasonal water table: Perched water table fluctuates between a depth of 1.5 and 3 feet during wet periods

Flooding: None

Root zone: Deep, but a seasonal high water table commonly at a depth of 1.5 to 3 feet during winter and early in the spring limits the plant growth

Shrink-swell potential: Very high

Tilth: Surface layer—friable; easily tilled throughout a wide range of moisture content; sticky when wet and hard when dry in graded areas where the subsoil is exposed; the optimum moisture content for tilling is narrow

Included with these soils in mapping are small areas of Falkner, Providence, and Tippah soils. These soils are on the uplands. Also included are a few areas of soils that have slopes that are more than 8 percent.

The Kipling soil is well suited to lawn grasses and ornamental plants. It is also well suited to native trees,

such as loblolly pine, cherrybark oak, Shumard oak, water oak, white oak, and sweetgum. This soil is suited to vegetable and landscape plants.

Kipling soil has severe limitations for most urban uses. High shrink-swell potential (fig. 12) and wetness are limitations for local roads and streets, house foundations, and small commercial buildings. Low strength as it affects local roads and streets is also a limitation. The clayey subsoil is a severe limitation for septic tank absorption fields. This limitation can be alleviated by enlarging the absorption fields. Community sanitary facilities should preferably be used in areas of this soil.

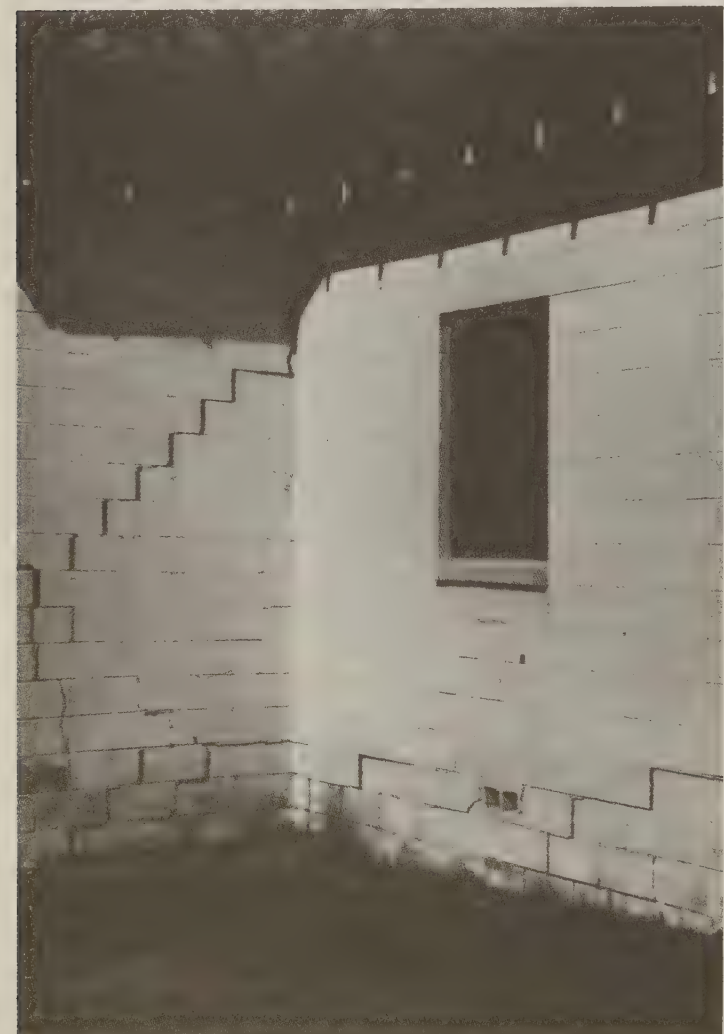

Figure 12.—A soil that has high shrink-swell potential can cause buildings, such as this church, to shift and crack. Kipling-Urban land complex, 2 to 8 percent slopes has severe limitations for most urban uses.

Urban land consists of undisturbed soils and reworked soil material. Urban land is covered by houses, streets, light industry, commercial buildings, and parking lots.

The soils in this map unit have not been assigned to a capability subclass or to a woodland suitability group.

38—Pits-Udorthents complex. This map unit mainly consists of gravel pits, sand pits, and borrow pits and Udorthents, or piles of mixed overburden soils. These Pits are open excavations from which soil, gravel, sand, clay, and part of the underlying geologic material have been removed for use at another location. Udorthents are spoil piles, which is the overburden of soil mixed with geological material; the composition consists of sandy, clayey, and silty soil material mixed with varying amounts of gravel and sand and, in places, with broken limestone rock. The areas are from 5 to 30 feet or more in depth and range from 3 to several hundred acres.

Pits make up about 60 percent of the map unit. Udorthents make up about 25 percent. Included soils make up about 15 percent.

Included in mapping are small areas of rocky rubble and gravel piles.

The gravel and sand pits are in the Citronell Formation and pre-loess terrace deposits, which underlie soils that formed in silty or loamy material. Sand and gravel pits mainly are in the southern half of the county. These pits are in areas of Smithdale, Providence, and Savannah soils. Borrow pits are scattered throughout the county. They are in areas from which soil and the underlying geologic material have been removed for use in construction of roads and dams. Pit floors and walls are a mixture of soil material and geologic strata.

A large area of Pits-Udorthents complex is west of Brandon. This complex is mainly in an area of Providence, Tippah, and Smithdale soils. Its bottom is in the Glendon Limestone of the Vicksburg Group. It was mined for clay, limestone, and marl, which were used in the manufacture of portland cement and masonry cement. This irregularly shaped map unit covers several hundred acres. The bottom is excavated into limestone. Within its confines are mounds of sandy, silty, and clayey soil material mixed with varying amounts of marl and broken limestone; heaps of rocky rubble; limestone ledges; and deep pools of clear water. In places, the unit is bounded by nearly vertical walls with exposures of geological strata capped by Udorthents or piles of mixed overburden soil; and in other places, the sides have been shaped, smoothed, and planted to pines.

Udorthents and the exposed soil material in open pits support sparse, low quality grass and weeds and scrubby pine trees, either singularly or in clumps; the exposed geologic strata are mostly barren of vegetation. Most plants are of little value except to control erosion. Many areas are barren. These areas are not suited to crops, pasture, or woodland or to urban use.

This map unit has not been assigned to a capability subclass or to a woodland suitability group.

41B2—Providence silt loam, 2 to 5 percent slopes, eroded. This is a deep, moderately well drained, gently sloping soil on ridgetops, uplands, and stream terraces. This soil has a fragipan. It formed in a silty mantle and the underlying loamy material. Individual areas range from 5 to more than 100 acres.

The typical sequence, depth, and composition of the layers of Providence soil are as follows:

Surface layer:
0 to 5 inches; dark brown silt loam

Subsoil:
5 to 17 inches; strong brown silt loam
17 to 26 inches; yellowish brown silt loam that has strong brown mottles
26 to 36 inches; brown silt loam that has light brownish gray and strong brown mottles; compact and brittle fragipan
36 to 63 inches or more; silt loam containing an appreciable amount of sand; mottles in shades of brown, gray, and yellow; compact and brittle fragipan

In most areas of this eroded soil, part of the original surface layer has been removed by erosion, and the remaining topsoil and subsoil have been mixed by tillage. In some small areas, the plow layer is the original topsoil; and in other areas, the plow layer is mainly the subsoil. In some areas are a few rills and shallow gullies.

Important soil properties of Providence soil:

Permeability: Moderate in the surface layer and upper part of the subsoil and moderately slow through the fragipan

Available water capacity: Moderate

Soil reaction: Very strongly acid to medium acid throughout except in areas where the surface layer has been limed

Surface runoff: Slow or medium

Erosion hazard: Moderate

Seasonal water table: Perched water table above the fragipan at a depth of 1.5 to 3 feet during wet periods

Flooding: None

Root zone: Compact and brittle fragipan in the lower part of the subsoil limits root penetration

Shrink-swell potential: Moderate

Tilth: Good; surface layer—can be tilled throughout a wide range of moisture content; tends to crust and pack after heavy rains

Included with this soil in mapping are small areas of Ora, Savannah, Tippah, and Leverett soils. Ora, Savannah, and Tippah soils are on uplands, and Leverett soils are on low stream terraces.

Most areas of this Providence soil are used as pasture and cropland. A small acreage is used as woodland.

This soil is well suited to row crops and small grains (fig. 13). Conservation practices, such as conservation tillage, crop rotation, contour farming, terraces, and grassed waterways should be used to slow runoff and help control erosion. Returning crop residue to the soil improves soil fertility and tilth and reduces crusting and packing.

This soil is well suited to grasses and legumes for pasture or hay. Using this soil for pasture and hay effectively slows runoff and controls erosion. The erosion hazard increases if row crops are grown. Overgrazing or grazing when the soil is too wet causes surface compaction and poor tilth and reduces the rate of moisture infiltration. Proper stocking, controlled grazing, and weed and brush control help keep the pasture and soil in good condition.

This soil is moderately suited to loblolly pine, yellow-poplar, sweetgum, Shumard oak, and shortleaf pine. Most concerns in woodland management are slight, but the windthrow hazard is a moderate concern. Seasonal wetness is a slight concern in woodland management for harvesting the tree crop, but this concern can be alleviated by harvesting during drier periods.

This soil has moderate limitations for most urban uses. Wetness and the shrink-swell potential of the subsoil are limitations for dwellings without basements and small commercial buildings. Low strength as it affects local roads and streets and seasonal wetness as it affects dwellings with basements are severe limitations. Special design and proper installation can alleviate these limitations. The moderately slow permeability in the fragipan and wetness are severe limitations to use of this soil as septic tank absorption fields, but these limitations can be alleviated by enlarging the absorption fields.

This Providence soil is in capability subclass IIe and in woodland suitability group 8D.

41C2—Providence silt loam, 5 to 8 percent slopes, eroded. This is a deep, moderately well drained, sloping soil on ridgetops and hillsides on uplands. This soil has a fragipan. It formed in a mantle of silty material and the underlying loamy material. Individual areas range from 5 to 80 acres.

The typical sequence, depth, and composition of the layers of Providence soil are as follows:

Surface layer:

Figure 13.—This skip row cotton is in an area of Providence silt loam, 2 to 5 percent slopes, eroded.

0 to 4 inches; dark yellowish brown silt loam

Subsoil:

4 to 11 inches; yellowish red silt loam

11 to 20 inches; strong brown silt loam

20 to 65 inches; silt loam in the upper part and sandy loam in the lower part mottled in shades of brown and gray; compact and brittle fragipan

In most areas of this eroded soil, part of the original surface layer has been removed by erosion, and the remaining topsoil and subsoil have been mixed by tillage. In some areas, the plow layer is the original topsoil; and in other areas, the plow layer is mainly the subsoil. In some areas are a few rills and shallow gullies.

Important soil properties of Providence soil:

Permeability: Moderate in the surface layer and upper part of the subsoil and moderately slow through the fragipan

Available water capacity: Moderate

Soil reaction: Very strongly acid to medium acid throughout except in areas where the surface layer has been limed

Surface runoff: Medium

Erosion hazard: Moderate to severe

Seasonal water table: Perched water table above the fragipan at a depth of 1.5 to 3 feet during wet periods

Flooding: None

Root zone: Compact and brittle fragipan in the lower part of the subsoil limits root penetration

Shrink-swell potential: Moderate

Tilth: Good; surface layer—can be tilled throughout a wide range of moisture content; tends to crust and pack after heavy rains

Included with this soil in mapping are small areas of Ora, Savannah, and Tippah soils. These soils are on the uplands.

Most areas of this Providence soil are used as pasture or cropland. A small acreage is used as woodland.

This soil is moderately suited to row crops and small grains. The erosion hazard and runoff increase if row crops are grown on this soil. Conservation tillage, contour farming, contour stripcropping, terraces, grassed waterways, and a cropping system that includes grasses and legumes reduce runoff and help control erosion. Returning crop residue to the soil improves fertility and tilth and reduces crusting and packing.

This soil is well suited to grasses and legumes for pasture or hay. Using this soil for hay and pasture effectively slows runoff and controls erosion. The erosion hazard increases if row crops are grown. Overgrazing or grazing when the soil is too wet causes surface compaction and poor tilth and increases runoff. Proper stocking, controlled grazing, and weed and brush control help keep the pasture and soil in good condition.

This soil is moderately suited to loblolly pine, yellow-poplar, shortleaf pine, Shumard oak, and sweetgum. Concerns in woodland management are slight, but the windthrow hazard is a moderate concern.

This soil has moderate limitations for most urban uses. Wetness and the shrink-swell potential of the subsoil are moderate limitations for dwellings without basements and small commercial buildings. Steepness of slope is a moderate limitation for small commercial buildings. Low strength as it affects local roads and streets and seasonal wetness as it affects dwellings with basements are severe limitations. Special design and proper installation can alleviate these limitations. The moderately slow permeability in the fragipan and wetness are severe limitations to use of this soil as septic tank absorption fields, but these limitations can be alleviated by enlarging the absorption fields.

This Providence soil is in capability subclass IIIe and in woodland suitability group 8D.

42B—Providence-Urban land complex, 2 to 8 percent slopes. This complex consists of deep, moderately well drained, gently sloping to sloping soils on uplands and stream terraces. Providence soil has a fragipan. The soil formed in a mantle of silty material and the underlying loamy material. The Urban land part of this complex is in the towns of Richland, Pearl, Florence, and Brandon. Areas of Providence soil and Urban land are so intermingled that it was not practical to map them separately. The mapped areas range from 40 to 300 acres.

Providence soil makes up about 40 percent of this map unit. Urban land makes up about 35 percent. The included soils make up about 25 percent of the map unit.

The typical sequence, depth, and composition of the layers of Providence soil are as follows:

Surface layer:
0 to 4 inches; dark grayish brown silt loam

Subsoil:
4 to 13 inches; yellowish red silt loam
13 to 20 inches; strong brown silt loam that has yellowish red mottles
20 to 65 inches; silt loam mottled in shades of brown and gray in the upper part and sandy loam mottled in shades of brown and gray in the lower part; compact and brittle fragipan

Important soil properties of Providence soil:

Permeability: Moderate in the surface layer and upper part of the subsoil and moderately slow in the fragipan

Available water capacity: Moderate

Soil reaction: Very strongly acid to medium acid throughout except in areas where the surface layer has been limed

Surface runoff: Slow to medium

Erosion hazard: Moderate to severe

Seasonal water table: Perched water table above the fragipan fluctuates between a depth of 1.5 and 3 feet during wet periods

Flooding: None

Root zone: Compact and brittle fragipan in the lower part of the subsoil limits root penetration

Shrink-swell potential: Moderate

Tilth: Surface layer—friable; easily tilled throughout a wide range of moisture content; tends to crust and pack after heavy rains

Urban land consists of undisturbed soils and reworked soil material. Urban land is covered by houses, streets, light industry, commercial buildings, and parking lots.

Included with these soils in mapping are small areas of Savannah and Tippah soils. Savannah soils are on uplands and stream terraces, and Tippah soils are on uplands. Also included are a few areas of soils that have slopes of more than 8 percent.

The Providence soil is well suited to lawn grasses and ornamental plants. It is also suited to native trees, such as loblolly pine, shortleaf pine, yellow-poplar, Shumard oak, white oak, southern red oak, cherrybark oak, eastern redcedar, pecan, and sweetgum. This soil is well suited to vegetable and landscape plants.

Providence soil has moderate limitations for most urban uses. Wetness and shrink-swell potential of the subsoil are moderate limitations for dwellings without basements and small commercial buildings. Also, steepness of slope is a moderate limitation for small commercial buildings. Low strength for local roads and streets and seasonal wetness as it affects dwellings with basements are severe limitations. The moderately slow permeability in the lower part of the subsoil and wetness are severe limitations to use of this soil as septic tank absorption fields. This generally can be alleviated by increasing the size of the absorption field.

The soils in this map unit have not been assigned to a capability subclass or to a woodland suitability group.

48C2—Ora fine sandy loam, 5 to 8 percent slopes, eroded. This is a deep, moderately well drained, sloping soil on ridgetops and hillsides on uplands. This soil has a fragipan. It formed in loamy marine sediment. Individual areas range from 5 to 40 acres.

The typical sequence, depth, and composition of the layers of Ora soil are as follows:

Surface layer:
0 to 3 inches; brown fine sandy loam

Subsoil:
3 to 6 inches; mottled strong brown and yellowish red loam
6 to 22 inches; yellowish red sandy clay loam
22 to 65 inches; sandy clay loam mottled in shades of red, brown, and gray in the upper part and loam mottled in shades of brown, yellow, and gray in the lower part; compact and brittle fragipan

In most areas of this eroded soil, part of the original surface layer has been removed by erosion, and the remaining topsoil and subsoil have been mixed by tillage. In some small areas, the plow layer is the original topsoil; and in other areas, the plow layer is mainly the subsoil. In some areas are a few rills and shallow gullies.

Important soil properties of Ora soil:

Permeability: Moderate in the upper part of the subsoil and moderately slow through the fragipan

Available water capacity: Moderate

Soil reaction: Very strongly acid or strongly acid throughout except in areas where the surface layer has been limed

Surface runoff: Medium

Erosion hazard: Moderate to severe

Seasonal water table: Perched water table above the fragipan at a depth of 2 to 3.5 feet during wet periods

Flooding: None

Root zone: Compact and brittle fragipan in the lower part of the subsoil limits root penetration

Shrink-swell potential: Low

Tilth: Good; surface layer—can be tilled throughout a wide range of moisture content; tends to crust and pack after heavy rains

Included with this soil in mapping are small areas of Providence, Savannah, and Tippah soils. These soils are on the uplands.

Most areas of this Ora soil are used as pasture or cropland. A small acreage is used as woodland.

This soil is moderately suited to row crops and small grains. The erosion hazard and runoff increase if row crops are grown on this soil. Intensive use of conservation practices, such as conservation tillage, contour farming, contour stripcropping, terraces, grassed waterways, vegetated field borders, vegetated filter strips, and cropping systems that include grasses and legumes slow runoff and help control erosion. The surface layer tends to crust and pack after heavy rains. A plow pan may form if the soil is tilled when wet. Chiseling or subsoiling can be used to break up the plow pan. Returning crop residue to the soil improves fertility and tilth and reduces crusting and packing of the surface layer.

This soil is well suited to grasses and legumes for pasture or hay. Using this soil for hay and pasture effectively slows runoff and controls erosion. The erosion hazard increases if row crops are grown. Overgrazing or grazing when the soil is too wet causes surface compaction and poor tilth and reduces the rate of

moisture infiltration. Proper stocking, controlled grazing, and weed and brush control help keep the pasture and soil in good condition.

This soil is moderately suited to loblolly pine, shortleaf pine, and sweetgum. Concerns in woodland management are slight, but plant competition is a moderate concern. If pines are planted, site preparation is needed to control competition from undesirable plants. Benefits of site preparation do not extend beyond one growning season.

This soil has moderate limitations for most urban uses. Low strength as it affects local roads and streets and seasonal wetness are the main limitations. For dwellings with basements, wetness is a severe limitation. For small commercial buildings, steepness of slope is a moderate limitation. Special design and proper installation can alleviate these limitations. The moderately slow permeability in the fragipan and wetness are severe limitations to use of this soils as septic tank absorption fields, but these limitations can be alleviated by enlarging the absorption fields.

This Ora soil is in capability subclass IIIe and in woodland suitability group 8A.

48D2—Ora fine sandy loam, 8 to 12 percent slopes, eroded. This is a deep, moderately well drained, strongly sloping soil on hillsides on uplands. This soil has a fragipan. It formed in loamy marine sediment. Individual areas range from 10 to 40 acres.

The typical sequence, depth, and composition of the layers of Ora soil are as follows:

Surface layer:
0 to 2 inches; dark grayish brown fine sandy loam

Subsurface layer:
2 to 5 inches; grayish brown fine sandy loam

Subsoil:
5 to 22 inches; red sandy clay loam
22 to 36 inches; yellowish red loam mottled in pale brown
36 to 60 inches; yellowish red sandy loam mottled with gray; compact and brittle fragipan

In most areas of this eroded soil, part of the original surface layer has been removed by erosion, and the remaining topsoil and subsoil have been mixed by tillage. In some small areas, the plow layer is the original topsoil; and in other areas, the plow layer is mainly the subsoil. In some areas are a few rills and shallow gullies.

Important soil properties of Ora soil:

Permeability: Moderate in the upper part of the subsoil and moderately slow through the fragipan

Available water capacity: Moderate

Soil reaction: Very strongly acid or strongly acid throughout except in areas where the surface layer has been limed

Surface runoff: Rapid

Erosion hazard: Severe

Seasonal water table: Perched water table above the fragipan at a depth of 2 to 3.5 feet during wet periods

Flooding: None

Root zone: Compact and brittle fragipan in the lower part of the subsoil limits root penetration

Shrink-swell potential: Low

Tilth: Good; surface layer—can be worked throughout a wide range of moisture content; tends to crust and pack after heavy rains

Included with this soil in mapping are small areas of Maben, Smithdale, and Tippah soils. These soils are on the uplands.

Most of the acreage of this Ora soil is used as pasture and woodland. A small acreage is used as cropland.

This soil is poorly suited to row crops and small grains because of steepness of slope and rapid runoff and because the hazard of erosion is severe. If row crops are grown, intensive use of conservation practices, such as conservation tillage, contour farming, contour stripcropping, terraces, grassed waterways, vegetated filter strips, vegetated field borders, and cropping systems that include grasses and legumes are needed to slow runoff and help control erosion. Returning crop residue to the soil improves fertility and tilth and reduces crusting and packing of the surface layer.

This soil is moderately suited to grasses and legumes for pasture or hay. Overgrazing or grazing when the soil is too wet causes surface compaction and poor tilth and reduces the rate of moisture infiltration. Using this soil for hay and pasture effectively controls erosion. The hazard of erosion increases if row crops are grown. Proper stocking, controlled grazing, and weed and brush control help to keep the pasture and soil in good condition.

This soil is moderately suited to loblolly pine, shortleaf pine, and sweetgum. Concerns in woodland management are slight. If pines are planted, site preparation is needed to control competition from undesirable plants. Benefits of site preparation do not extend beyond one growning season.

This soil has moderate limitations for most urban uses. Low strength and slope as they affect local streets and roads and seasonal wetness are the major limitations. Steepness of slopes is a severe limitation for small

commercial buildings. For dwellings with basements, wetness is a severe limitation. Special design and proper installation can alleviate these limitations. The moderately slow permeability in the fragipan and wetness are severe limitations for use of this soil as septic tank absorption fields, but these limitations can be alleviated by enlarging the absorption fields.

This Ora soil is in capability subclass IVe and in woodland suitability group 8A.

49B2—Savannah loam, 2 to 5 percent slopes, eroded. This is a deep, moderately well drained, gently sloping soil on ridgetops on uplands and stream terraces. This soil has a fragipan. It formed in loamy marine sediment. Individual areas range from 10 to about 80 acres.

The typical sequence, depth, and composition of the layers of Savannah soil are as follows:

Surface layer:
0 to 5 inches; dark grayish brown loam

Subsurface layer:
5 to 11 inches; yellowish brown fine sandy loam

Subsoil:
11 to 19 inches; yellowish brown loam
19 to 28 inches; yellowish brown loam, mottles in shades of yellow
28 to 65 inches; loam mottled in shades of brown and gray in the upper part and sandy loam mottled in shades of brown and gray in the lower part

In most areas of this eroded soil, part of the original surface layer has been removed by erosion, and the remaining topsoil and subsurface soil has been mixed by tillage. In some small areas, the plow layer is the original topsoil; and in other areas, the plow layer is mainly the subsoil. In some areas are a few rills and shallow gullies.

Important soil properties of Savannah soil:

Permeability: Moderate in the surface layer and upper part of the subsoil and moderately slow through the fragipan

Available water capability: Moderate

Soil reaction: Very strongly acid or strongly acid throughout except in areas where the surface layer has been limed

Surface runoff: Slow to medium

Erosion hazard: Moderate

Seasonal water table: Perched water table above the fragipan at a depth of 1.5 to 3 feet during wet periods

Flooding: None

Root zone: Root penetration is limited. Compact and brittle fragipan in the lower part of the subsoil limits root penetration

Shrink-swell potential: Low

Tilth: Good; surface layer—can be tilled throughout a wide range of moisture content; tends to crust and pack after heavy rains

Included with this soil in mapping are small areas of Ora, Tippah and Providence soils. Ora and Tippah soils are on the uplands. Providence soils are on uplands and stream terraces.

Most areas of this Savannah soil are used as pasture or cropland. A small acreage is used as woodland.

This soil is well suited to row crops and small grains. Conservation tillage, crop rotation, contour farming, terraces, and grassed waterways slow runoff and help control erosion. Returning crop residue to the soil improves fertility and tilth and reduces crusting and packing of the surface layer.

This soil is well suited to grasses and legumes for pasture or hay. These pasture plants effectively slow runoff and help control erosion. Overgrazing or grazing when the soil is too wet causes surface compaction and poor tilth and reduces the rate of moisture infiltration. Proper stocking, controlled grazing, and weed and brush control help keep the pasture and soil in good condition.

This soil is moderately suited to loblolly pine, shortleaf pine, and southern red oak. Concerns in woodland management are slight, but plant competition is a moderate concern. The windthrow hazard is a moderate concern. If pines are planted, site preparation is needed to control competition from undesirable plants. Benefits of site preparation do not extend beyond one growing season.

This soil has moderate limitations for most urban uses. Seasonal wetness is the major limitation. Wetness is a severe limitation for dwellings with basements. Special design and proper installation can alleviate the wetness limitation. The moderately slow permeability in the fragipan and wetness are severe limitations for use of this soil as septic tank absorption fields, but these limitations can be alleviated by enlarging the absorption fields.

This Savannah soil is in capability subclass IIe and in woodland suitability group 8A.

49C2—Savannah loam, 5 to 8 percent slopes, eroded. This is a deep, moderately well drained, sloping soil on ridgetops and hillsides on uplands. This soil has a fragipan. It formed in loamy marine sediment. Individual areas range from 5 to about 100 acres.

The typical sequence, depth, and composition of the layers of Savannah soil are as follows:

Surface layer:
0 to 4 inches; brown loam

Subsoil:
4 to 22 inches; strong brown loam, yellowish red stains along root channels in the lower part
22 to 60 inches or more; strong brown loam mottled in shades or red, gray, and brown; compact and brittle fragipan

In most areas of this eroded soil, part of the original surface layer has been removed by erosion, and the remaining topsoil and subsoil have been mixed by tillage. In some small areas, the plow layer is the original topsoil; and in other areas, the plow layer is mainly the subsoil. In some areas are a few rills and shallow gullies.

Important soil properties of Savannah soil:

Permeability: Moderate in the surface layer and upper part of the subsoil and moderately slow through the fragipan

Available water capacity: Moderate

Soil reaction: Very strongly acid or strongly acid throughout except in areas where the surface layer has been limed

Surface runoff: Medium

Erosion hazard: Moderate to severe

Seasonal water table: Perched water table above the fragipan at a depth of 1.5 to 3 feet during wet periods

Flooding: None

Root zone: Compact and brittle fragipan in the lower part of the subsoil limits root penetration

Shrink-swell potential: Low

Tilth: Good; surface layer—can be tilled throughout a wide range of moisture content; tends to crust and pack after heavy rains

Included in mapping are small areas of Ora, Providence, and Tippah soils. These soils are on uplands.

Most areas of this Savannah soil are used as pasture or cropland. A small acreage is used as woodland.

This soil is moderately suited to row crops and small grains. The erosion hazard and runoff increase if row crops are grown. Conservation tillage, contour farming, terraces, grassed waterways, and cropping systems that include grasses and legumes slow runoff and help control erosion. Returning crop residue to the soil improves fertility and tilth and reduces crusting and packing of the surface layer.

This soil is well suited to grasses and legumes for pasture or hay. These pasture plants effectively slow runoff and help control erosion. Overgrazing or grazing when the soil is too wet causes surface compaction, and poor tilth and reduces the rate of moisture infiltration. Proper stocking, controlled grazing, and weed and brush control help to keep the pasture and soil in good condition.

This soil is moderately suited to loblolly pine, shortleaf pine, and southern red oak. Most concerns in woodland management are slight, but the windthrow hazard and plant competition limitation are moderate concerns. If pines are planted, site preparation is needed to control competition from undesirable plants. Benefits of site preparation do not extend beyond one growing season.

This soil has moderate limitations for most urban uses. Seasonal wetness is the major limitation. Wetness is a severe limitation for dwellings with basements. Steepness of slope is a moderate limitation for small commercial buildings. Special design and proper installation can alleviate these limitations. The moderately slow permeability in the fragipan and wetness are severe limitations as septic tank absorption fields, but these limitations can be alleviated by enlarging the absorption fields.

This Savannah soil is in capability subclass IIIe and in woodland suitability group 8A.

50B—Savannah-Quitman association, undulating. This map unit consists of deep, moderately well drained, gently sloping to sloping soils on stream terraces and uplands. These soils formed in loamy marine or fluvial sediments. The soils in this map unit are in a regular and repeating pattern on the landscape. Individual areas are large enough to be mapped separately, but because of similar present or predicted uses, they were mapped as an association. The mapped areas range from 160 to more than 600 acres. The slopes range from 2 to 8 percent.

Savannah soil is mainly on slightly higher stream terraces and uplands that have slopes that range from 2 to 8 percent, and Quitman soil is mainly on lower stream terraces that have slopes that range from 2 to 5 percent.

The Savannah soil and soils that are similar make up about 48 percent of the map unit. Quitman soil and soils that are similar make up about 28 percent. The included soils make up about 24 percent of the map unit.

The typical sequence, depth, and composition of the layers of Savannah soil are as follows:

Surface layer:
0 to 4 inches; dark grayish brown fine sandy loam

Subsurface layer:
4 to 9 inches; brown fine sandy loam

Subsoil:
9 to 25 inches; yellowish brown loam
25 to 60 inches; loam in the upper part and clay loam in the lower part, mottled in shades of gray, red, and brown; compact and brittle fragipan

Important soil properties of Savannah soil:

Permeability: Moderate in the surface layer and upper part of the subsoil and moderately slow through the fragipan

Available water capacity: Moderate

Soil reaction: Very strongly acid or strongly acid throughout except in areas where the surface layer has been limed

Surface runoff: Slow or medium

Erosion hazard: Moderate to severe

Seasonal water table: Perched water table above the fragipan at a depth of 1.5 to 3 feet of the surface during wet periods

Flooding: None

Root zone: Compact and brittle fragipan in the lower part of the subsoil limits root penetration

Shrink-swell potential: Low

Tilth: Good; surface layer—can be tilled throughout a wide range of moisture content; tends to crust and pack after heavy rains

The typical sequence, depth, and composition of the layers of Quitman soil are as follows:

Surface layer:
0 to 5 inches; grayish brown loam

Subsoil:
5 to 26 inches; yellowish brown loam that has pale brown and light brownish gray mottles
26 to 38 inches; yellowish brown loam that has light brownish gray and reddish yellow mottles; slightly brittle
38 to 60 inches; mottled yellowish brown, strong brown, and light brownish gray clay loam; slightly brittle

Important soil properties of Quitman soil:

Permeability: Moderate in the surface layer and upper part of the subsoil and moderately slow in the lower part

Available water capacity: Moderate

Soil reaction: Very strongly acid or strongly acid throughout except in areas where surface layers have been limed

Surface runoff: Slow to medium

Erosion hazard: Moderate

Seasonal water table: Perched water table at a depth of 1.5 to 2 feet during wet periods

Flooding: None

Root zone: Deep, but a seasonal water table at a depth of 1.5 to 2 feet during winter and early in the spring limits plant growth.

Shrink-swell potential: Low

Tilth: Surface layer—friable; easily tilled throughout a wide range of moisture content; tends to crust and pack after heavy rains

Included with these soils in mapping are Kirkville and Ora soils. Kirkville soils are on the flood plains, and Ora soils are on the uplands. Also included are some soils that are similar to Savannah soils but are clayey in the lower part of the subsoil, and some small areas of soils that have slopes of more than 8 percent.

All acreages of Savannah and Quitman soils are used as woodland.

Savannah soil is moderately suited to row crops and small grains. Quitman soil is well suited to row crops and small grains. The erosion hazard and runoff increase if row crops are grown. Conservation tillage, contour farming, terraces, grassed waterways, and cropping systems that include grasses and legumes slow runoff and help control erosion. The surface layer tends to crust and pack after heavy rains. Returning crop residue to the soil improves fertility and tilth and reduces crusting and packing of the surface layer.

These Savannah and Quitman soils are well suited to grasses and legumes for pasture or hay. These pasture plants effectively slow runoff and help control erosion. Overgrazing or grazing when the soil is too wet causes surface compaction and poor tilth and reduces the rate of moisture infiltration. Proper stocking, controlled grazing, and weed and brush control help keep the pasture and soil in good condition.

Savannah soil is moderately suited to loblolly pine, shortleaf pine, and southern red oak. Concerns in woodland management are slight but the windthrow

hazard and plant competition limitation are moderate concerns. Quitman soil is well suited to water oak, loblolly pine, sweetgum, American sycamore, and yellow-poplar. Concerns in woodland management are slight, but the equipment use limitation is a moderate concern. If pines are planted on Savannah soil, site preparation is needed to control competition from undesirable plants. Benefits of site preparation do not extend beyond one growing season.

These soils have moderate limitations for most urban uses. On Quitman soil, low strength as it affects local road and streets and seasonal wetness are the major limitations for urban use. For dwellings with basements, wetness is a severe limitation. On Savannah soil, steepness of slope is a moderate limitation for small commercial buildings. Special design and proper installation can alleviate the slope limitation. The restricted permeability in the lower part of the subsoil of Quitman and Savannah soils and wetness are severe limitations as septic tank absorption fields, but these limitations can be alleviated by enlarging the absorption fields.

This Savannah soil is in capability subclass IIIe and in woodland suitability group 8A, and Quitman soil is in capability subclass IIe and in woodland suitability group 10W.

51B—Falkner silt loam, 2 to 5 percent slopes. This is a deep, somewhat poorly drained, gently sloping to steep soil on broad ridges and at the base of hillsides on uplands and stream terraces. It formed in a mantle of silty material overlying clayey material. Individual areas range from 10 to 400 acres.

The typical sequence, depth, and composition of the layers of Falkner soil are as follows:

Surface layer:
0 to 8 inches; yellowish brown silt loam

Subsoil:
8 to 12 inches; yellowish brown silty clay loam that has light brownish gray mottles
12 to 26 inches; mottled yellowish brown and light brownish gray silty clay loam
26 to 49 inches; silty clay mottled in shades of brown and gray
49 to 57 inches; yellowish brown silty clay that has light brownish gray mottles
57 to 65 inches; mottled yellowish brown, light brownish gray, gray, and brownish yellow silty clay

This slightly eroded soil has a few rills. In a few areas, evidence of accelerated erosion is in the surface layer but not enough to greatly modify the thickness and characteristics of the original plow layer.

Important soil properties of Falkner soil:

Permeability: Moderately slow in the upper part and very slow in the lower part of the subsoil

Available water capacity: High

Soil reaction: Very strongly acid to medium acid in the surface layer except in areas where the surface layer has been limed and in the upper part of the subsoil; very strongly acid to slightly acid in the lower part of the subsoil

Surface runoff: Slow or medium

Erosion hazard: Moderate

Seasonal water table: Perched water table at a depth of 1.5 to 2.5 feet during wet periods late in winter and early in the spring

Flooding: None

Root zone: Deep, but a seasonal water table at a depth of 1.5 to 2.5 feet during winter and early in the spring limits plant growth

Shrink-swell potential: High

Tilth: Surface layer—friable; easily tilled throughout a wide range of moisture content; tends to crust and pack after heavy rains

Included with this soil in mapping are small areas of Kipling, Tippah, Providence, and Savannah soils. Kipling and Tippah soils are on the uplands. Providence and Savannah soils are on uplands and stream terraces. Also included are some soils that are similar to Falkner soil but are underlain by alkaline clay.

Most of the acreage of this Falkner soil is used for row crops or pasture. A small acreage is used as woodland.

This soil is moderately suited to row crops and small grains (fig. 14). If row crops are grown, practices to help control erosion, such as adequate cropping systems that include rotation of grasses and legumes, conservation tillage, contour farming, contour stripcropping, grassed waterways, and terraces should be used. Cultivated crops that produce large amounts of residue reduce crusting and packing and help control erosion.

This soil is well suited to grasses and legumes for hay and pasture. Using this soil for hay and pasture effectively controls erosion. The erosion hazard increases if row crops are grown. Overgrazing or grazing when the soil is too wet causes surface compaction and poor tilth and reduces the rate of moisture infiltration. Proper stocking, controlled grazing, and weed and brush control help keep the pasture and soil in good condition.

This soil is well suited to loblolly pine, sweetgum, shortleaf pine, and cherrybark oak. Concerns in woodland management for Falkner soil are slight, but to

Figure 14.—Soybeans growing in an area of Falkner silt loam, 2 to 5 percent slopes.

use of equipment and plant competition, limitations are moderate concerns. Seasonal wetness is a moderate concern in woodland management for harvesting the tree crop. This concern can be alleviated by harvesting during the drier periods. If pines are planted, site preparation is needed to control competition from undesirable plants. Benefits of site preparation do not extend beyond one growing season.

Wetness and the high shrink-swell potential of this soil are severe limitations for urban use. Low strength as it affects local roads and streets is also a severe limitation for this use. Special design and proper installation can alleviate these limitations. The very slow permeability of the clayey lower part of the subsoil is a severe limitation for use of this soil as septic tank absorption fields. This limitation can be alleviated by enlarging the absorption fields.

This Falkner soil is in capability subclass IIIe and in woodland suitability group 8W.

55A—Kipling silt loam, 0 to 2 percent slopes. This is a deep, somewhat poorly drained, nearly level soil on uplands in the Blackland Prairie. It formed in clayey sediment. Individual areas range from 10 to more than 150 acres.

The typical sequence, depth, and composition of the layers of Kipling soil are as follows:

Surface layer:
0 to 6 inches; brown silt loam

Subsoil:
6 to 14 inches; yellowish brown silty clay loam that has light brownish gray and red mottles
14 to 42 inches; yellowish brown silty clay that has grayish brown and red mottles in the upper part and strong brown, brown, and gray mottles in the lower part

Substratum:

42 to 65 inches or more; clay mottled in shades of brown, olive, and gray

This slightly eroded soil has a few rills. In a few areas, evidence of accelerated erosion is in the surface layer but not enough to greatly modify the thickness and characteristics of the original plow layer.

Important soil properties of Kipling soil:

Permeability: Slow in the surface layer and upper part of the subsoil and very slow in the lower part

Available water capacity: Very high

Soil reaction: Very strongly acid to medium acid in the surface layer and in the upper part of the subsoil except in areas where the surface layer has been limed; very strongly acid to moderately alkaline in the lower part of the subsoil, and strongly acid to moderately alkaline in the substratum

Surface runoff: Slow

Erosion hazard: Slight

Seasonal water table: Perched water table at a depth of 1.5 to 3 feet during wet periods in winter and early in the spring

Flooding: None

Root zone: Deep, but during winter and early in the spring a seasonal water table limits plant growth

Shrink-swell potential: Very high

Tilth: Surface layer—friable; easily tilled throughout a wide range of moisture content; tends to crust and pack after heavy rains

Included with this soil in mapping are small areas of Falkner, Pelahatchie, Savannah, and Tippah soils. These soils are on the uplands.

Most of the acreage of this Kipling soil is used for row crops and pasture. The rest of the acreage is used as woodland.

This soil is moderately suited to row crops and small grains. Conservation tillage and returning crop residue to the soil improve tilth and reduce crusting and packing after heavy rainfall. In some places, proper arrangement of rows and surface field ditches are needed to remove surface water.

This soil is well suited to grasses and legumes for hay and pasture. Overgrazing or grazing when the soil is too wet causes compaction and poor tilth and reduces the rate of moisture infiltration. Proper stocking, controlled grazing, and weed and brush control help keep the soil and pasture in good condition.

This soil is well suited to loblolly pine, cherrybark oak, Shumard oak, water oak, white oak, and sweetgum. Concerns in woodland management are moderate, but the hazards of erosion and windthrow are slight concerns. Seasonal wetness is a moderate concern for harvesting the tree crop. This concern can be alleviated by harvesting during dry periods. If pines are planted, site preparation is needed to control competition from undesirable plants. Benefits of site preparation do not extend beyond one growing season.

Wetness and the high shrink-swell potential of this soil are severe limitations for urban use. Low strength as it affects local roads and streets is a severe limitation for this use. Special design and proper installation can alleviate these limitations. The very slow permeability of the clayey lower part of the subsoil and wetness are severe limitations to use of this soil as septic tank absorption fields. These limitations can be alleviated by enlarging the absorption fields.

The Kipling soil is in capability subclass IIIw and in woodland suitability group 8C.

55B—Kipling silt loam, 2 to 5 percent slopes. This is a deep, somewhat poorly drained, gently sloping soil on ridgetops and hillsides on uplands in the Blackland Prairie. It formed in clayey sediment. Individual areas range from 10 to more than 200 acres.

The typical sequence, depth, and composition of the layers of Kipling soil are as follows:

Surface layer:
0 to 6 inches; grayish brown silt loam

Subsurface layer:
6 to 12 inches; pale brown silt loam

Subsoil:
12 to 26 inches; mottled yellowish brown, red, and light brownish gray silty clay
26 to 41 inches; yellowish brown silty clay that has yellowish red and light brownish gray mottles
41 to 52 inches; light olive brown silty clay that has light brownish gray mottles

Substratum:
52 to 65 inches; mottled dark grayish brown, olive brown, and olive yellow silty clay

This slightly eroded soil has a few rills. In a few areas, evidence of accelerated erosion is in the surface layer but not enough to greatly modify the thickness and characteristics of the original plow layer.

Important soil properties of Kipling soil:

Permeability: Slow in the surface layer and upper part of the subsoil and very slow in the lower part

Available water capacity: Very high

Soil reaction: Very strongly acid to medium acid in the surface layer and upper part of the subsoil except in areas where the surface layer has been limed, very strongly acid to moderately alkaline in the lower part of the subsoil, and strongly acid to moderately alkaline in the substratum

Surface runoff: Slow or medium

Erosion hazard: Moderate

Seasonal water table: Perched water table at a depth of 1.5 to 3 feet during wet periods in winter and early in the spring

Flooding: None

Root zone: Deep, but a seasonal water table during winter and early in the spring limits plant growth

Shrink-swell potential: Very high

Tilth: Surface layer—friable; easily tilled throughout a wide range of moisture content; tends to crust and pack after heavy rains

Included with this soil in mapping are small areas of Falkner, Pelahatchie, and Tippah soils. These soils are on the uplands. Also included are small areas of soils that are clayey, but they are alkaline throughout.

Most of the acreage of this Kipling soil is used for row crops or pasture. A small acreage is used as woodland.

This soil is moderately suited to row crops and small grains. If row crops are grown, practices to help control erosion, such as conservation tillage, crop rotation, contour farming, contour stripcropping, grassed waterways, and terraces should be used (fig. 15). Cultivated crops that produce large amounts of residue reduce crusting and packing of the surface layer and help control erosion.

This soil is well suited to grasses and legumes for hay and pasture. Using this soil for hay and pasture effectively controls erosion. The erosion hazard increases if row crops are grown. Overgrazing or grazing when the soil is too wet causes compaction and poor tilth and reduces the rate of moisture infiltration. Proper stocking, controlled grazing, and weed and brush control help keep the pasture and soil in good condition.

This soil is well suited to cherrybark oak, Shumard oak, water oak, white oak, sweetgum, and loblolly pine. Concerns in woodland management are moderate, but

Figure 15.—These terraces are in an area of Kipling silt loam, 2 to 5 percent slopes. They empty into a grassed waterway and reduce the erosion hazard on this cotton field.

the hazards of erosion and windthrow are slight concerns. Seasonal wetness is a moderate concern for harvesting the tree crop. This wetness limitation can be alleviated by harvesting during dry periods. If pines are planted, site preparation is needed to control competition from undesirable plants. Benefits of site preparation do not extend beyond one growing season.

Wetness and the high shrink-swell potential of this soil are severe limitations for urban use. Low strength as it affects local roads and streets is a severe limitation for this use. Special design and proper installation can alleviate these limitations. The very slow permeability of the clayey lower part of the subsoil and wetness are severe limitations to use of this soil as septic tank absorption fields. These limitations can be alleviated by enlarging the absorption fields.

This Kipling soil is in capability subclass IIIe and in woodland suitability group 8C.

55C2—Kipling silt loam, 5 to 8 percent slopes, eroded. This is a deep, somewhat poorly drained, sloping soil on uplands in the Blackland Prairie. It is mainly on hillsides above drainageways. This soil formed in clayey sediment. Individual areas range from 10 to more than 500 acres.

The typical sequence, depth, and composition of the layers of Kipling soil are as follows:

Surface layer:
0 to 5 inches; dark brown silt loam

Subsoil:
5 to 13 inches; mottled yellowish brown, light brownish gray, and yellowish red silty clay
13 to 53 inches; mottled yellowish brown and light brownish gray clay in the upper part and grayish brown clay that has light olive brown mottles in the lower part

Substratum:
53 to 65 inches or more; mottled brown, olive, and gray clay

In most areas of this eroded soil, part of the original surface layer has been removed by erosion, and the remaining topsoil and subsoil have been mixed by tillage. In some small areas, the plow layer is the original topsoil; and in other areas, the plow layer is mainly the subsoil. In some areas are a few rills and shallow gullies.

Important soil properties of Kipling soil:

Permeability: Slow in the surface layer and upper part of the subsoil and very slow in the lower part

Available water capacity: Very high

Soil reaction: Very strongly acid to medium acid in the surface layer and upper part of the subsoil except in areas where the surface layer has been limed and very strongly acid to moderately alkaline in the lower part of the subsoil and in the substratum

Surface runoff: Medium

Erosion hazard: Moderate to severe

Seasonal water table: Perched water table at a depth of 1.5 to 3 feet during wet periods in winter and early in the spring

Flooding: None

Root zone: Deep, but a seasonal water table in winter and early in the spring limits plant growth

Shrink-swell potential: Very high

Tilth: Surface layer—friable; easily tilled throughout a wide range of moisture content; tends to crust and pack after heavy rains

Included with this soil in mapping are small areas of Savannah and Tippah soils. These soils are on the uplands. Also included are smaller areas of soils that are similar to Kipling soils but have slopes of more than 8 percent. Also included are small areas of soils that are clayey, but they are alkaline throughout.

Most of the acreage of this Kipling soil is used for pasture and woodland. A small acreage is used for row crops.

This soil is moderately suited to row crops and small grains, but intensive use of conservation practices are needed if cultivated crops are grown. If row crops are grown, practices to control erosion, such as cropping systems that include grasses and legumes, cover crops, conservation tillage, contour farming, contour stripcropping, grassed waterways, and terraces should be used. Cultivated crops that produce large amounts of residue reduce crusting and packing of the surface layer and help control erosion.

This soil is moderately suited to grasses and legumes for hay and pasture. Using this soil for hay and pasture effectively controls erosion (fig. 16). Overgrazing or grazing when the soil is too wet causes surface compaction and poor tilth and reduces the rate of moisture infiltration. Proper stocking, controlled grazing, and weed and brush control help keep the pasture and soil in good condition.

This Kipling soil is well suited to cherrybark oak, water oak, Shumard oak, white oak, sweetgum, and loblolly pine. Concerns in woodland management are moderate, but the erosion and windthrow hazards are slight concerns. Seasonal wetness is a moderate concern in woodland management for harvesting the tree crop. This concern can be alleviated by harvesting during the drier periods. If pines are planted, site preparation is needed

Figure 16.—This field of common bermudagrass hay is in an area of Kipling silt loam, 5 to 8 percent slopes, eroded. This permanent sod effectively controls erosion.

to control competition from undesirable plants. Benefits of site preparation do not extend beyond one growing season.

Wetness and shrink-swell potential of this soil are severe limitations for urban use. Low strength as it affects local roads and streets is a severe limitation for urban use. Special design and proper installation will alleviate these limitations. The very slow permeability in the clayey lower part of the subsoil is a severe limitation to use of this soil as septic tank absorption fields. This limitation can be alleviated by enlarging the absorption field.

This Kipling soil is in capability subclass IVe and in woodland suitability group 8C.

56A—Pelahatchie silt loam, 0 to 2 percent slopes. This is a deep, moderately well drained, nearly level soil on uplands in the Blackland Prairie. It formed in a mantle of silty material and the underlying calcareous, clayey material. Individual areas range from 10 to 100 acres.

The typical sequence, depth, and composition of the layers of Pelahatchie soil are as follows:

Surface layer:

0 to 6 inches; dark grayish brown silt loam

Subsoil:

6 to 17 inches; dark brown silt loam that has yellowish brown mottles

17 to 28 inches; yellowish brown silty clay that has red and dark brown mottles

28 to 38 inches; light olive brown silty clay that has gray and yellowish brown mottles

Substratum:

38 to 80 inches or more; mottled brown, olive, and gray clay

This slightly eroded soil has a few rills. In a few areas, evidence of accelerated erosion is in the surface layer

but not enough to greatly modify the thickness and characteristics of the original plow layer.

Important soil properties of Pelahatchie soil:

Permeability: Moderately slow or moderate in the surface layer and the upper subsoil and very slow in the lower part

Available water capacity: High

Soil reaction: Very strongly acid to medium acid in the surface layer and upper part of the subsoil except in areas where the surface layer has been limed, strongly acid to mildly alkaline in the lower part of the subsoil, and mildly alkaline or moderately alkaline in the substratum

Surface runoff: Slow

Erosion hazard: Slight

Seasonal water table: None within a depth of 6 feet, but soil retains a high amount of water and is slow to dry out

Flooding: None

Root zone: Deep, but a high retention of water in winter and early in the spring somewhat limits plant growth

Shrink-swell potential: Very high

Tilth: Surface layer—friable; easily tilled throughout a wide range of moisture content; tends to crust and pack after heavy rains

Included with this soil in mapping are small areas of Falkner and Kipling soils. These soils are on the uplands.

Most of the acreage of this Pelahatchie soil is used for row crops. The rest of the acreage is used as woodland and pasture.

This soil is well suited to row crops and small grains. Conservation tillage and returning crop residue to the soil improves tilth and reduces crusting and packing. The surface layer of the soil tends to crust and pack after heavy rainfall. In some places, proper arrangement of rows and surface field ditches are needed to remove surface water.

This soil is well suited to grasses and legumes for hay and pasture. Overgrazing or grazing when the soil is too wet causes compaction and poor tilth and reduces the rate of moisture infiltration. Proper stocking, controlled grazing, and weed and brush control help keep the soil and pasture in good condition. Restricted grazing during wet periods helps reduce compaction of the surface layer.

This soil is well suited to water oak, Shumard oak, southern red oak, white oak, sweetgum, cherrybark oak, and loblolly pine. Concerns in woodland management are slight, but equipment use and plant competition are moderate concerns. If pines are planted, site preparation is needed to control competition from undesirable plants. Benefits of site preparation do not extend beyond one growing season.

Wetness and the high shrink-swell potential of this soil are severe limitations for urban use. Low strength as it affects local roads and streets is a severe limitation for this use. Special design and proper installation can alleviate these limitations. The very slow permeability of the clayey lower part of the subsoil and wetness are severe limitations to use of this soil as septic tank absorption fields. These limitations can be alleviated by enlarging the absorption fields.

This Pelahatchie soil is in capability subclass IIw and in woodland suitability group 9C.

56B—Pelahatchie silt loam, 2 to 5 percent slopes. This is a deep, moderately well drained, gently sloping soil on uplands in the Blackland Prairie. It formed in a mantle of silty material and the underlying calcareous, clayey material. Individual areas range from 5 to more than 400 acres.

The typical sequence, depth, and composition of the layers of Pelahatchie soil are as follows:

Surface layer:
0 to 6 inches; dark brown silt loam

Subsoil:
6 to 14 inches; dark brown silt loam that has strong brown mottles
14 to 21 inches; dark grayish brown silty clay loam that has red mottles
21 to 43 inches; mottled brown and red silty clay in the upper part; mottled yellowish brown, red, and light brownish gray silty clay in the lower part

Substratum:
43 to 75 inches or more; mottled yellowish brown and light brownish gray silty clay

This slightly eroded soil has a few rills and in a few areas there is evidence of accelerated erosion in the surface layer but not enough to greatly modify the thickness and character of the original plow layer.

Important soil properties of Pelahatchie soil:

Permeability: Moderate to moderately slow in the surface layer and upper part of the subsoil and very slow in the lower part

Available water capacity: High

Soil reaction: Very strongly acid to medium acid in the surface layer and upper part of the subsoil except in areas where the surface layer has been limed, strongly acid to mildly alkaline in the lower part of

the subsoil, and mildly alkaline or moderately alkaline in the substratum

Surface runoff: Slow or medium

Erosion hazard: Moderate

Seasonal water table: None within a depth of 6 feet, but soil retains a high amount of water and is slow to dry out

Flooding: None

Root zone: Deep, but a high retention of water in winter and early in the spring somewhat limits plant growth

Shrink-swell potential: Very high

Tilth: Surface layer—friable; easily tilled throughout a wide range of moisture content; tends to crust and pack after heavy rains

Included with this soil in mapping are small areas of Falkner and Kipling soils. These soils are on the uplands.

Most of the acreage of this Pelahatchie soil is used for row crops (fig. 17). A small acreage is used as pasture or woodland.

This soil is well suited to row crops and small grains. If row crops are grown, practices to control erosion, such as cropping systems that include grasses and legumes, conservation tillage, contour farming, grassed waterways, and terraces, should be used. Cultivated crops that produce large amounts of residue reduce crusting and packing of the surface layer and help control erosion.

This soil is well suited to grasses and legumes for hay and pasture. Using this soil for hay and pasture

Figure 17.—Corn and soybeans are growing in an area of Pelahatchie silt loam, 2 to 5 percent slopes. The broad, gently sloping landscape is typical of the prairies in north Rankin County.

effectively controls erosion. The erosion hazard increases if row crops are grown. Overgrazing or grazing when the soil is too wet causes compaction and poor tilth and reduces the rate of moisture infiltration. Proper stocking and controlled grazing help keep the pasture and soil in good condition and reduce erosion.

This soil is well suited to loblolly pine, Shumard oak, cherrybark oak, water oak, white oak, sweetgum, and southern red oak. Concerns in woodland management are slight, but equipment use and plant competition are moderate concerns. If pines are planted, site preparation is needed to control competition from undesirable plants. Benefits of site preparation do not extend beyond one growing season.

Wetness and the high shrink-swell potential of this soil are severe limitations for urban use. Low strength as it affects local roads and streets is a severe limitation for this use. Special design and proper installation can alleviate these limitations. The very slow permeability of the clayey lower part of the subsoil and wetness are severe limitations to use of this soil as septic tank absorption fields. These limitations can be alleviated by enlarging the absorption fields.

This Pelahatchie soil is in capability subclass IIe and in woodland suitability group 9C.

62F—Smithdale-Providence-Kisatchie association, hilly. This map unit consists of deep and moderately deep, well drained and moderately well drained soils (fig. 18) on rugged dissected upland terrain of narrow ridgetops, steep hillsides, and short drainageways. Shallow ravines, rock outcrops and a few deep ravines are present in most areas. The soils in this map unit are in a regular and repeating pattern on the landscape. Individual areas are large enough to be mapped separately, but because of similar present or predicted uses, they were mapped as an association. The mapped areas range from 200 to more than 2,500 acres. The slopes range from 10 to 40 percent.

Smithdale soil is deep and well drained and is on the hillsides. It formed in loamy material. Smithdale soil has slopes that range from 10 to 40 percent. Providence soil is deep and moderately well drained and is on the ridgetops. This soil has a fragipan. Providence soil formed in a mantle of silty material and the underlying loamy sediment. This soil has slopes that range from 10

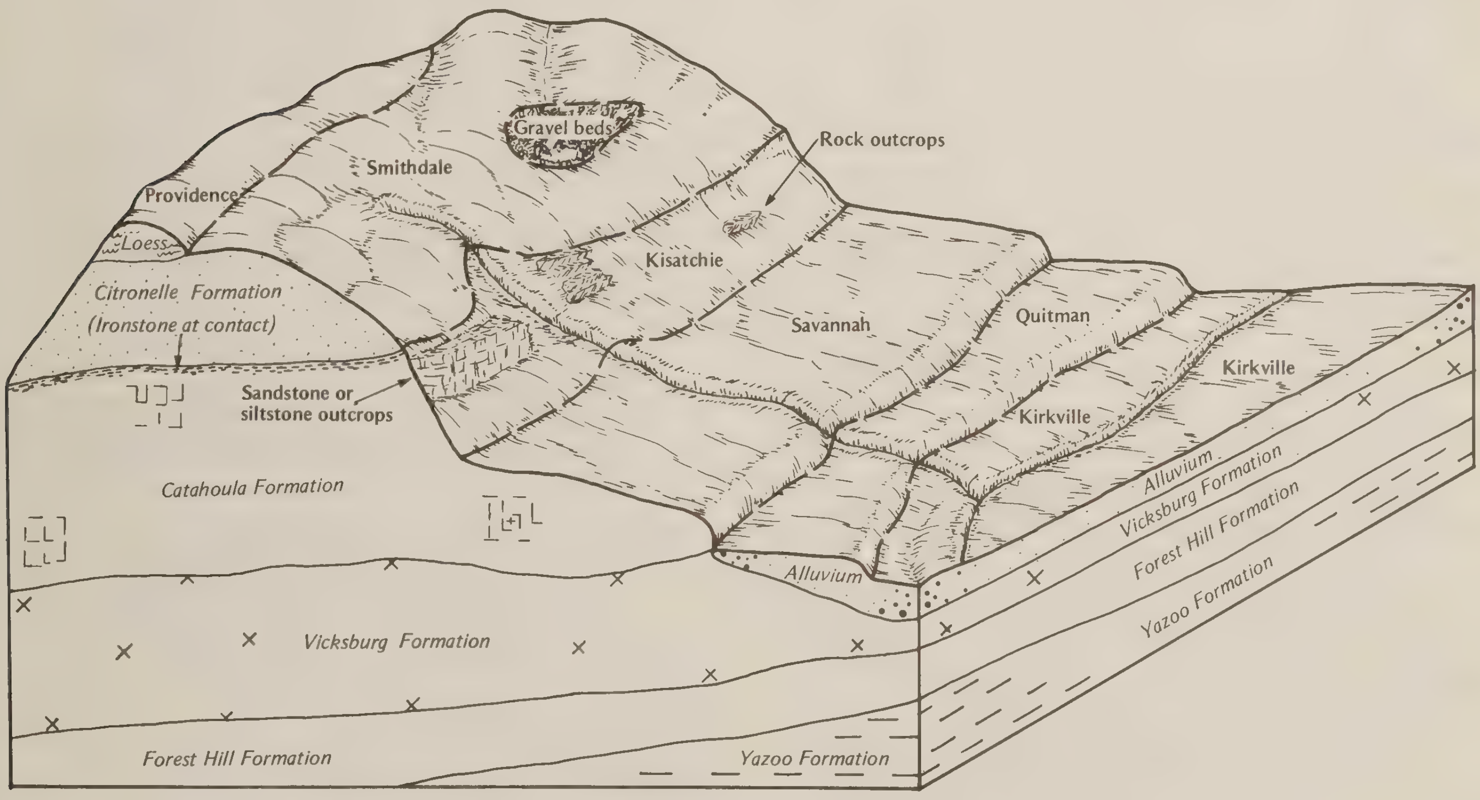

Figure 18.—Diagram of the Smithdale-Providence-Kisatchie association, hilly, in southern Rankin County.

to 15 percent. Kisatchie soil is moderately deep and well drained and is on the hillsides and ridgetops. It formed in clayey sediment underlain by sandstone or siltstone. Kisatchie soil has slopes that range from 10 to 40 percent.

Smithdale soil and soils that are similar make up about 37 percent of the map unit. Providence soil and soils that are similar make up 22 percent, and Kisatchie soil and soils that are similar make up 15 percent. The included soils make up about 26 percent of the map unit.

The typical sequence, depth, and composition of the layers of Smithdale soil are as follows:

Surface layer:
0 to 4 inches; dark grayish brown fine sandy loam

Subsurface layer:
4 to 15 inches; light yellowish brown fine sandy loam

Subsoil:
15 to 52 inches; red and yellowish red sandy clay loam with strong brown mottles in the lower part
52 to 75 inches; red and yellowish red sandy loam

Important soil properties of Smithdale soil:

Permeability: Moderate

Available water capacity: Moderate

Soil reaction: Very strongly acid or strongly acid throughout

Surface runoff: Rapid

Erosion hazard: Severe

Seasonal water table: None within a depth of 6 feet

Flooding: None

Root zone: Deep and easily penetrated by plant roots

Shrink-swell potential: Low

The typical sequence, depth, and composition of the layers of Providence soil are as follows:

Surface layer:
0 to 6 inches; dark brown silt loam

Subsoil:
6 to 23 inches; brown silty clay loam
23 to 31 inches; yellowish brown silty clay loam
31 to 52 inches; firm, compact and brittle fragipan; it is yellowish brown mottled in shades of brown and gray and is silt loam in the upper part and clay loam in the lower part
52 to 60 inches; firm, compact and brittle fragipan; it is brown mottled in shades of brown and gray and is sandy clay loam

Important soil properties of Providence soil:

Permeability: Moderate in the surface layer and upper part of the subsoil and moderately slow in the fragipan

Available water capacity: Moderate

Soil reaction: Very strongly acid to medium acid throughout

Surface runoff: Medium to rapid

Erosion hazard: Severe

Seasonal water table: Perched water table above the fragipan at a depth of 1.5 to 3 feet during wet periods

Flooding: None

Root zone: Compact and brittle fragipan in the lower part of the subsoil limits root penetration and the amount of water available to plants

Shrink-swell potential: Moderate

The typical sequence, depth, and composition of the layers of Kisatchie soil are as follows:

Surface layer:
0 to 2 inches; dark grayish brown fine sandy loam

Subsurface layer:
2 to 11 inches; grayish brown fine sandy loam

Subsoil:
11 to 19 inches; pale olive clay loam that has brownish yellow mottles
19 to 23 inches; pale olive channery clay loam that has light yellowish brown and brownish yellow mottles

Underlying material:
23 to 40 inches or more; light yellowish brown and light brownish gray soft, fractured siltstone

Important soil properties of Kisatchie soil:

Permeability: Very slow

Available water capacity: Low

Soil reaction: Very strongly acid or strongly acid in the surface layer and subsurface layer and extremely

acid or very strongly acid in the subsoil and underlying material

Surface runoff: Very rapid

Erosion hazard: Severe

Seasonal water table: None within a depth of 6 feet

Flooding: None

Root zone: Restricted to about 2 to 3 feet by the underlying siltstone or sandstone

Shrink-swell potential: High

Included with these soils in mapping are small areas of Savannah and Tippah soils. These soils are on the upland ridgetops. Also included are some small areas of well drained and moderately well drained loamy alluvial soils in narrow drainageways, some small areas of soils that have slope of less than 10 percent, some small areas of gravelly soils, and some small areas of rock outcrop.

The soils in this association are mostly used as woodland.

Smithdale and Kisatchie soils are poorly suited to row crops and to grasses and legumes for hay and pasture because of steepness of slope and because of the severe erosion hazard. Providence soil is poorly suited to row crops and small grains and is moderately suited to grasses and legumes for hay and pasture. Grazing or overgrazing Providence soil when it is too wet causes compaction and poor tilth and reduces the rate of moisture infiltration. Proper stocking, controlled grazing, and weed and brush control help keep the pasture and soil in good condition.

Smithdale soil is moderately suited to loblolly pine and shortleaf pine. Providence soil is moderately suited to loblolly pine, sweetgum, shortleaf pine, Shumard oak, and yellow-poplar. Kisatchie soil is poorly suited to loblolly pine and shortleaf pine. Concerns in woodland management for Smithdale and Providence soils are slight, but the hazard of erosion and the use of equipment are moderate concerns for Smithdale soil, and the windthrow hazard is a moderate concern for Providence soil. Concerns in woodland management for Kisatchie soil are moderate. Because of the limited rooting depth of the Kisatchie soil, growth of trees is reduced. Steepness of slope and rapid runoff cause washouts and the formation of gullies on skid trails and haul roads on the soils in this map unit. These limitations can be alleviated by harvesting in the drier periods and by placing skid trails, log landings, and haul roads properly and within limiting grades. After harvesting, water bars are needed on all sloping roads to prevent gully erosion. Roads should be seeded to grass to prevent erosion.

Smithdale soil has severe limitations for most urban uses because of steepness of slope. Special design and proper installation can alleviate these limitations. Smithdale soil has severe limitations as septic tank absorption fields because of steepness of slope. Installing septic tank absorption fields on the contour can alleviate this limitation.

Providence soil has severe limitations for most urban uses. Low strength as it affects local roads and streets and seasonal wetness are major limitations. Steepness of slope is a severe limitation for small commercial buildings. These limitations can be alleviated by special design and proper installation. The moderately slow permeability in the lower part of the subsoil is a severe limitation for the use of this soil as septic tank absorption fields. This limitation can be alleviated by enlarging the absorption fields. Preferably, community sanitary facilities should be used in areas of this soil.

Kisatchie soil is poorly suited to most urban uses because of steep slopes, depth to bedrock, and high shrink-swell potential of the subsoil. The very slow permeability of the subsoil of Kisatchie soil and steepness of slope are severe limitations for the use of this soil as septic tank absorption fields.

This Smithdale soil is in capability subclass VIIe and in woodland suitability group 8R. Providence and Kisatchie soils are in capability subclass VIe. Providence soil is in woodland suitability group 8D, and Kisatchie soil is in woodland suitability group 6D.

64F—Smithdale-Providence association, hilly. This map unit consists of well drained and moderately well drained, steep soils on rolling to hilly upland ridgetops and steep hillsides. The soils in this map unit are in a regular and repeating pattern on the landscape. Individual areas are large enough to be mapped separately, but because of similar present or predicted uses, they were mapped as an association. The mapped areas range from 160 to more than 800 acres. The slopes range from 12 to 35 percent.

Smithdale soil is well drained and is on the middle and lower parts of the hillsides. It formed in loamy marine sediment. Smithdale soil has slopes that range from 12 to 35 percent. Providence soil is moderately well drained and is mainly on the ridgetops and the upper part of the hillsides. It formed in a mantle of silty material and the underlying loamy sediment. Providence soil has a fragipan. The slopes range from 12 to 15 percent.

Smithdale soil makes up about 58 percent of the map unit. Providence soil makes up about 28 percent. The included soils make up about 14 percent of the map unit.

The typical sequence, depth, and composition of the layers of Smithdale soil are as follows:

Surface layer:

0 to 6 inches; dark grayish brown fine sandy loam

Subsurface layer:
6 to 15 inches; light yellowish brown sandy loam

Subsoil:
15 to 28 inches; yellowish red clay loam
28 to 40 inches; red clay loam that has yellowish brown and pale brown mottles
40 to 80 inches or more; red sandy loam that has pockets of pale brown sand

Important soil properties of Smithdale soil:

Permeability: Moderate

Available water capacity: Moderate

Soil reaction: Very strongly acid or strongly acid throughout

Surface runoff: Rapid

Erosion hazard: Severe

Seasonal water table: None within a depth of 6 feet

Flooding: None

Root zone: Deep and easily penetrated by plant roots

Shrink-swell potential: Low

The typical sequence, depth, and composition of the layers of Providence soil are as follows:

Surface layer:
0 to 5 inches; brown silt loam

Subsoil:
5 to 22 inches; yellowish red silty clay loam
22 to 31 inches; strong brown silt loam
31 to 63 inches; yellowish brown silt loam mottled in shades of brown and gray in the upper part and loam mottled in shades of brown and gray in the lower part; firm, compact, and brittle fragipan

Substratum:
63 to 70 inches or more; mottled brown and gray sandy loam

Important soil properties of Providence soil:

Permeability: Moderate in the surface layer and upper part of the subsoil and moderately slow in the fragipan

Available water capacity: Moderate

Soil reaction: Very strongly acid to medium acid throughout

Surface runoff: Medium or rapid

Erosion hazard: Severe

Seasonal water table: Perched water table above the fragipan at a depth of 1.5 to 3 feet during wet periods

Flooding: None

Root zone: Compact and brittle fragipan in the lower part of the subsoil limits root penetration

Shrink-swell potential: Moderate

Included with these soils in mapping are small areas of Kisatchie, Maben, and Tippah soils. These soils are on uplands. Also included are some small areas of soils that have slopes of less than 12 percent.

These Smithdale and Providence soils are mostly used as woodland.

Smithdale soil is poorly suited to row crops and to grasses and legumes for hay and pasture because of steepness of slope and because of the severe erosion hazard. Providence soil is poorly suited to row crops and small grains and moderately suited to pasture and to grasses and legumes. Overgrazing or grazing when Providence soil is too wet causes compaction and poor tilth and reduces the rate of moisture infiltration. Proper stocking, controlled grazing, and weed and brush control help keep the pasture and soil in good condition.

The soils of this map unit are moderately suited to loblolly pine and shortleaf pine. In addition, Providence soil is moderately suited to Shumard oak, sweetgum and yellow-poplar. Steepness of slope and rapid runoff cause washouts and formation of gullies on skid trails and haul roads. These limitations can be alleviated by harvesting in drier periods and by placing skid trails, log landing, and haul roads on the contour and within limiting grades. After harvesting, water bars are needed on all sloping roads to prevent gully erosion. Roads should be seeded to grass to control erosion. Concerns in woodland management for Smithdale soil and Providence soil are slight, but equipment use is a moderate concern for Smithdale soil and windthrow hazard is a moderate concern for Providence soil.

Smithdale soil has severe limitations for most urban uses because of steepness of slope. Special design and proper installation can alleviate these limitations. Steepness of slope also is a severe limitation for use of this soil as septic tank absorption fields. Installing septic tank absorption fields on the contour can alleviate this limitation. Providence soil has severe limitations for most urban uses. Wetness and steepness of slope as it affects small commercial buildings and low strength as it affects local roads and streets are the major limitations. These limitations can be alleviated by special design and

proper installation. Providence soil has severe limitation as septic tank absorption fields because of the moderately slow permeability of the fragipan. This limitation can be alleviated by enlarging the absorption fields.

This Smithdale soil is in capability subclass VIIe and in woodland suitability group 8R. Providence soil is in capability subclass VIe and in woodland suitability group 8D.

65D—Smithdale-Providence complex, 8 to 17 percent slopes. This map unit consists of deep, well drained and moderately well drained, strongly sloping to moderately steep soils on upland hillsides and ridgetops. These soils are so intermingled that it was not practical to map them separately at the scale selected for mapping. The mapped areas range from 5 to 160 acres.

Smithdale soil is well drained and is on upland hillsides. This soil formed in loamy material.

Providence soil is moderately well drained and is on ridgetops and on the upper part of the upland hillsides. It has a fragipan. The slopes range from 8 to 15 percent. This soil formed in a mantle of silty material and the underlying loamy material.

Smithdale soil makes up about 45 percent of the map unit. Providence soil makes up about 35 percent. The included soils make up about 20 percent of the map unit.

The typical sequence, depth, and composition of the layers of Smithdale soil are as follows:

Surface layer:
0 to 5 inches; dark grayish brown fine sandy loam

Subsurface layer:
5 to 19 inches; yellowish brown fine sandy loam

Subsoil:
19 to 43 inches, red and yellowish red sandy clay loam, strong brown mottles in the lower part
43 to 80 inches; red and yellowish red sandy loam that has pockets of pale brown sand grains

Important soil properties of Smithdale soil:

Permeability: Moderate

Available water capacity: Moderate

Soil reaction: Very strongly acid or strongly acid throughout

Surface runoff: Rapid

Erosion hazard: Severe

Seasonal water table: None within a depth of 6 feet

Flooding: None

Root zone: The root zone is deep and easily penetrated by plant roots

Shrink-swell potential: Low

The typical sequence, depth, and composition of the layers of Providence soil are as follows:

Surface layer:
0 to 5 inches; yellowish brown silt loam

Subsoil:
5 to 16 inches; yellowish red silty clay loam
16 to 29 inches; strong brown silt loam
29 to 63 inches; silt loam in the upper part and loam in the lower part, mottled throughout in shades of gray and brown; firm, compact, and brittle fragipan

Important soil properties of Providence soil:

Permeability: Moderate in the surface layer and upper part of the subsoil and moderately slow in the fragipan

Available water capacity: Moderate

Soil reaction: Very strongly acid to medium acid throughout

Surface runoff: Medium or rapid

Erosion hazard: Severe

Seasonal water table: Perched water table above the fragipan at a depth of 1.5 to 3 feet during wet periods

Flooding: None

Root zone: Compact and brittle fragipan in the lower part of the subsoil limits root penetration

Shrink-swell potential: Moderate

Included with these soils in mapping are small areas of Kisatchie, Ora, and Savannah soils. These soils are on the uplands. Also included are some small areas of alluvial soils.

Most of the soils in this map unit are used as pasture and woodland.

These soils are poorly suited to and are not recommended for row crops and small grains because of slope and because the hazard of erosion is severe. Permanent vegetation should be kept on these soils.

Smithdale and Providence soils are moderately suited to grass and legumes for hay and pasture. Overgrazing or grazing when the soil is too wet causes surface compaction and poor tilth and reduces the rate of

moisture infiltration. Using the soil for pasture and hay effectively controls erosion. The hazard of erosion increases if row crops are grown. Concerns in management include proper stocking, control grazing, and weed and brush control.

Smithdale and Providence soils are moderately suited to trees, such as loblolly pine and shortleaf pine. Providence soil is also moderately suited to Shumard oak, sweetgum, and yellow-poplar. Benefits of site preparation do not extend beyond one growing season. Woodland use and management have no significant limitations.

Smithdale soil has moderate limitations for most urban uses. Steepness of slope is the main limitation. This limitation can generally be alleviated by special design and proper installation. Smithdale soil has severe limitations as septic tank absorption fields because of steepness of slope. This limitation can be alleviated by installing the absorption fields on the contour.

Providence soil has severe limitations for most urban uses because of wetness. Low strength as it affects local roads and streets is a severe limitation. For small commercial buildings, steepness of slope is a severe limitation. For dwellings without basements, wetness, steepness of slope, and the shrink-swell potential of the subsoil are only moderate limitations. These limitations can be alleviated by special design and proper installation. Providence soil has severe limitations as septic tank absorption fields because of steepness of slope, wetness, and the moderately slow permeability of the fragipan. These limitations can be alleviated by installing septic tank absorption fields on the contour and enlarging the absorption fields.

The soils in this map unit are in capability subclass VIe. Smithdale soil is in woodland suitability group 8A, and Providence soil is in woodland suitability group 8D.

66B—Providence-Tippah association, undulating. The soils in this map unit consists of deep, moderately well drained, gently undulating to gently rolling soils on uplands. The soils in this map unit are in a regular and repeating pattern on the landscape. Individual areas are large enough to be mapped separately, but because of similar present or predicted uses, they were mapped as an association. The mapped areas range from 160 to more than 600 acres. The slopes range from 2 to 8 percent.

Providence soil has a fragipan. It formed in a silty mantle and the underlying loamy material. Tippah soil formed in a silty mantle underlain by clayey material.

The Providence soil and soils that are similar make up about 43 percent of the map unit. Tippah soil and soils that are similar make up about 38 percent. The included soils make up about 19 percent of the map unit.

The typical sequence, depth, and composition of the layers of Providence soil are as follows:

Surface layer:
0 to 4 inches; dark grayish brown silt loam

Subsoil:
4 to 26 inches; strong brown silt loam
26 to 62 inches or more; silt loam in the upper part and loam in the lower part, mottled in shades of brown and gray; compact and brittle fragipan

Important soil properties of Providence soil:

Permeability: Moderate in the surface layer and upper part of the subsoil and moderately slow through the fragipan

Available water capacity: Moderate

Soil reaction: Very strongly acid to medium acid throughout

Surface runoff: Slow to medium

Erosion hazard: Moderate to severe

Seasonal water table: Perched water table above the fragipan at a depth of 1.5 to 3 feet during wet periods

Flooding: None

Root zone: Compact and brittle fragipan in the lower part of the subsoil limits root penetration

Shrink-swell potential: Moderate

Tilth: Surface layer—friable; easily tilled throughout a wide range of moisture content; tends to crust and pack after heavy rains

The typical sequence, depth, and composition of the layers of Tippah soil are as follows:

Surface layer:
0 to 4 inches; brown silt loam

Subsoil:
4 to 24 inches; yellowish red silty clay loam
24 to 32 inches; strong brown silty clay that has light brownish gray mottles
32 to 60 inches; mottled gray, brown, and red clay

Important soil properties of Tippah soil:

Permeability: Moderate in the surface layer and upper part of the subsoil and slow in the lower part of the subsoil

Available water capacity: High

Soil reaction: Very strongly acid to medium acid throughout except in areas where the surface layer has been limed

Surface runoff: Slow to medium

Erosion hazard: Moderate to severe

Seasonal water table: Perched water table above the clayey subsoil at a depth of 2 to 2.5 feet during wet periods in winter and early in the spring

Flooding: None

Root zone: Deep, but the clayey lower part of the subsoil somewhat hampers root penetration

Shrink-swell potential: High

Tilth: Surface layer—friable; easily tilled throughout a wide range of moisture content; tends to crust and pack after heavy rains

Included with these soils in mapping are small areas of Falkner, Kisatchie, and Savannah soils. These soils are on the uplands. Also included are some small areas of soils that are moderately well drained and are on the narrow flood plains.

All of the acreage of the Providence and Tippah soils is used as woodland.

These soils are moderately suited to row crops and small grains. If row crops are grown, intensive use of practices to control erosion such as conservation tillage, contour farming, contour stripcropping, grassed waterways, terraces, a cropping system that includes grasses and legumes, and returning crop residue to the soil, are needed. Cultivated crops that produce large amounts of residue reduce crusting and packing of the surface layer and help reduce erosion.

These soils are well suited to grasses and legumes for pasture and hay. Overgrazing or grazing when the soil is too wet causes compaction and poor tilth and reduces the rate of moisture infiltration. Using the soil for hay and pasture effectively controls erosion. The hazard of erosion increases if row crops are grown. Proper stocking, controlled grazing, and weed and brush control help to keep the pasture and soil in good condition.

Providence soil is moderately suited to loblolly pine (fig. 19), shortleaf pine, Shumard oak, sweetgum, and yellow-poplar. Tippah soil is moderately suited to cherrybark oak, Shumard oak, white oak, loblolly pine, sweetgum, and yellow-poplar. Concerns in woodland management for the soils in this map unit are slight, but the windthrow hazard on Providence soil is a moderate concern. If pines are planted, site preparation is needed to control competition from undesirable plants. Benefits of site preparation do not extend beyond one growing season.

The Providence soil has severe limitations for most urban uses. Low strength as it affects local streets and roads, slope as it affects small commercial buildings, and seasonal wetness are the major limitations. Special design and proper installation can alleviate these limitations. The moderately slow permeability in the fragipan and wetness are severe limitations for the use of this soil as septic tank absorption fields. These limitations can be alleviated by enlarging the absorption fields.

The Tippah soil has severe limitations for most urban uses. Low strength as it affects streets and roads, slope as it affects small commercial buildings, and seasonal wetness are the major limitations. Special design and proper installation can alleviate these limitations. The slow permeability in the clayey lower part of the subsoil and wetness are severe limitations for the use of this soil as septic tank absorption fields. These limitations can be alleviated by enlarging the absorption fields.

The soils in this map unit are in capability subclass IIIe. Providence soil is in woodland suitability group 8D, and Tippah soil is in woodland suitability group 9A.

67B—Kipling-Falkner association, undulating. This map unit consists of deep, somewhat poorly drained gently undulating or gently rolling soils on uplands. The soils in this map unit are in a regular and repeating pattern in the landscape. Individual areas are large enough to be mapped separately, but because of similar present or predicted uses, they were mapped as an association. The mapped areas range from 160 to more than 600 acres. The slopes range from 2 to 8 percent.

Kipling soil mainly is on lower elevations on the hillsides. It formed in clayey sediment. Falkner soil is on the upper elevations on the hillsides and on low ridges. It formed in a mantle of silty material underlain by clayey sediment.

The Kipling soil and soils that are similar make up about 41 percent of the map unit. Falkner soil and soils that are similar make up about 39 percent. The included soils make up about 20 percent of the map unit.

The typical sequence, depth, and composition of the layers of Kipling soil are as follows:

Surface layer:
0 to 2 inches; dark brown silt loam

Subsoil:
2 to 5 inches; yellowish brown silty clay loam that has pale brown mottles
5 to 40 inches; mottled yellowish brown, gray, and red clay
40 to 44 inches; light olive brown clay that has light brownish gray mottles

Substratum:

Figure 19.—An improved stand of loblolly pine in an area of Providence-Tippah association, undulating. Undesirable understory trees have been killed as a part of timber stand improvement practices.

44 to 60 inches or more; light olive brown clay mottled in gray

Important soil properties of Kipling soil:

Permeability: Slow in the surface layer and upper part of the subsoil and very slow in the lower part

Available water capacity: Very high

Soil reaction: Very strongly acid to medium acid in the surface layer and upper part of the subsoil, very strongly acid to moderately alkaline in the lower part, and strongly acid to moderately alkaline in the substratum

Surface runoff: Slow or medium

Erosion hazard: Moderate to severe

Seasonal water table: Perched water table at a depth of 1.5 to 3 feet during wet periods in winter and early in the spring

Flooding: None

Root zone: Deep, but a seasonal water table at a depth of 1.5 to 3 feet in winter and early in the spring limits plant growth

Shrink-swell potential: Very high

Tilth: Surface layer—friable; easily tilled throughout a wide range of moisture content; tends to crust and pack after heavy rains

The typical sequence, depth, and composition of the layers of Falkner soil are as follows:

Surface layer:
0 to 2 inches; dark grayish brown silt loam

Subsurface layer:
2 to 7 inches; pale brown silt loam

Subsoil:
7 to 23 inches; light yellowish brown silt loam that has gray mottles in the lower part
23 to 66 inches; gray silty clay that has yellowish brown mottles in the upper part

Substratum:
66 to 75 inches or more; olive brown clay mottled in shades of brown and gray

Important soil properties of Falkner soil:

Permeability: Moderately slow in the upper part of the subsoil and very slow in the lower part

Available water capacity: High

Soil reaction: Very strongly acid to medium acid in the surface layer and upper part of the subsoil and very strongly acid to slightly acid in the lower part

Surface runoff: Slow or medium

Erosion hazard: Moderate to severe

Seasonal water table: Perched water table at a depth of 1.5 to 2.5 feet during wet periods in winter and early in the spring

Flooding: None

Root zone: Deep, but a seasonal water table at a depth of 1.5 to 2.5 feet during winter and early in the spring limits plant growth

Shrink-swell potential: High

Tilth: Surface layer—friable; easily tilled throughout a wide range of moisture content; tends to crust and pack after heavy rains

Included with these soils in mapping are small areas of Savannah, Tippah, and Urbo soils. Savannah and Tippah soils are on the uplands. Urbo soils are on the flood plains. Also included are a few areas of soils that are alkaline throughout and are on the flood plains.

All of the acreage of Kipling and Falkner soils are used as woodland.

These soils are poorly suited to row crops and small grains. Intensive use of conservation practices are needed if cultivated crops are grown. If row crops are grown, practices to control erosion, such as cropping systems that include grasses and legumes, cover crops, conservation tillage, contour farming, contour stripcropping, grassed waterways, and terraces should be used. Cultivated crops that produce large amounts of residue reduce crusting and packing of the surface layer and help reduce erosion.

The soils in this map unit are well suited to grasses and legumes for hay and pasture. Using the soils for hay and pasture effectively controls erosion. The hazard of erosion increases if row crops are grown. Overgrazing or grazing when the soils are too wet causes compaction and poor tilth and reduces the rate of moisture infiltration. Proper stocking, controlled grazing, and weed and brush control help keep the pasture and soil in good condition.

Kipling soil is well suited to cherrybark oak, Shumard oak, sweetgum, water oak, white oak, and loblolly pine. If pines are planted, site preparation is needed to control competition from undesirable plants. Benefits of site preparation do not extend beyond one growing season. Seasonal wetness is a moderate limitation to use of Kipling soil as woodland. This limitation can be alleviated by logging during the dry periods. The erosion hazard and windthrow hazard are slight. The Falkner soil is well suited to loblolly pine, shortleaf pine, sweetgum, and cherrybark oak. Concerns in woodland management are slight, but equipment use and plant competition are moderate concerns.

The shrink-swell potential of the subsoil, low strength as it affects local roads and streets, and wetness are severe limitations of Kipling and Falkner soils for most urban uses. These limitations can be alleviated by special design and proper installation. The slow or very slow permeability of the subsoil is a severe limitation to the use of these soils as septic tank absorption fields. The use of community sanitary facilities is preferable in areas of this soil.

The soils in this map unit are in capability subclass IVe. Kipling soil is in woodland suitability group 9C, and Falkner soil is in woodland suitability group 8W.

68D2—Smithdale fine sandy loam, 8 to 17 percent slopes, eroded. This deep, well drained, strongly sloping to moderately steep soil is on upland hillsides that are disected by small drainageways. It formed in loamy marine sediment. Individual areas range from 20 to 200 acres.

The typical sequence, depth, and composition of the layers of Smithdale soil are as follows:

Surface layer:
0 to 4 inches; dark grayish brown fine sandy loam

Subsurface layer:
4 to 10 inches; yellowish brown fine sandy loam

Subsoil:
10 to 15 inches; yellowish brown fine sandy loam
15 to 41 inches; red sandy clay loam
41 to 75 inches; red sandy loam, pockets of pale brown sand grains in the lower part

In most areas of this soil are a few rills and shallow gullies. Areas exist where the surface layer has been entirely removed and the surface layer consists wholly of material from the subsoil.

Important soil properties of Smithdale soil:

Permeability: Moderate

Available water capacity: Moderate

Soil reaction: Very strongly acid or strongly acid throughout except in areas where the surface layer has been limed

Surface runoff: Rapid

Erosion hazard: Severe

Seasonal water table: None within a depth of 6 feet

Flooding: None

Root zone: Deep and easily penetrated by plant roots

Shrink-swell potential: Low

Included with this soil in mapping are small areas of Maben, Ora, and Savannah soils. Ora and Maben soils are on uplands, and Savannah soils are on uplands and stream terraces.

This soil is not suited to row crops, because of the severe erosion hazard and steepness of slope.

All of the acreage of the Smithdale soil is used as pasture or woodland.

This soil is poorly suited to row crops and small grains because of the severe hazard of erosion and because of rapid runoff and steepness of slope. This soil should be kept in permanent vegetation of grasses and legumes or trees.

This soil is moderately suited to grasses and legumes for hay and pasture. Using this soil for hay and pasture effectively controls erosion. The hazard of erosion increases if row crops are grown. Grazing or overgrazing when the soil is too wet causes compaction and poor tilth and reduces the rate of moisture infiltration. Good practices to use in pasture management include proper stocking, controlled grazing, and weed and brush control.

This soil is moderately suited to loblolly and shortleaf pines. Concerns in woodland management are slight. Erosion is somewhat of a problem on the steeper slopes. Water bars are needed on all sloping roads to prevent erosion, and grass should be established on roads following harvesting.

This soil has moderate limitations for most urban uses because of steepness of slope. For small commercial buildings, the limitations are severe because of steepness of slope. This limitation can be alleviated by special design and proper installation. Slope is a moderate limitation to use of this soil as septic tank absorption fields. This limitation can be alleviated by installing the septic tank absorption fields on the contour.

This Smithdale soil is in capability subclass VIe and in woodland suitability group 8A.

70F—Maben-Smithdale association, hilly. This map unit consists of deep, well drained, gently rolling to hilly soils on uplands that have rounded hilltops and strongly sloping to steep hillsides. The valleys are narrow. The soils in this map unit are in a regular and repeating pattern on the landscape. The mapped areas are large enough to be mapped separately, but because of similar present or predicted uses, they were mapped as an association. The mapped areas range from 160 to more than 1,500 acres. The slopes range from 5 to 35 percent.

Maben soil is on the lower ridgetops and hillsides. This soil formed in stratified loamy material and shaly clay. Smithdale soil is on the higher ridgetops and upper hillsides. This soil formed in loamy marine sediment.

Maben soil and soils that are similar make up about 39 percent of the map unit. Smithdale soil and soils that are similar make up about 25 percent. The included soils make up about 36 percent of the map unit.

The typical sequence, depth, and composition of the layers of Maben soil are as follows:

Surface layer:
0 to 6 inches; brown fine sandy loam

Subsurface layer:
6 to 11 inches; mottled pale brown, yellowish brown, and brown fine sandy loam

Subsoil:

11 to 28 inches; yellowish red silty clay
28 to 42 inches; yellowish red silty clay that has red mottles and few thin gray clay strata

Substratum:
42 to 59 inches; thinly bedded stratified clay, very fine sands, and loamy material mottled in shades of yellow, brown, red, and gray
59 to 80 inches; thinly bedded clays, sands, and loamy material mottled in shades of brown and gray

Important soil properties of Maben soils:

Permeability: Moderately slow

Available water capacity: Moderate

Soil reaction: Strongly acid to slightly acid in the surface layer and very strongly acid to medium acid in the subsoil and substratum

Surface runoff: Rapid

Erosion hazard: Severe

Seasonal water table: None within a depth of 6 feet

Flooding: None

Root zone: Somewhat restricted below a depth of about 42 inches by the clayey substratum

Shrink-swell potential: High

The typical sequence, depth, and composition of the layers of Smithdale soil are as follows:

Surface layer:
0 to 2 inches; dark grayish brown fine sandy loam

Subsurface layer:
2 to 11 inches; pale brown very fine sandy loam

Subsoil:
11 to 35 inches; yellowish red clay loam
35 to 57 inches; yellowish red sandy clay loam that has pale brown mottles
57 to 70 inches; yellowish red sandy loam that has pale brown pockets of sand grains

Important soil properties of Smithdale soil:

Permeability: Moderate

Available water capacity: Moderate

Soil reaction: Very strongly acid or strongly acid throughout

Surface runoff: Rapid

Erosion hazard: Severe

Seasonal water table: None within a depth of 6 feet

Flooding: None

Root zone: Deep, easily penetrated by plant roots

Shrink-swell potential: Low

Included with these soils in mapping are some small areas of the Kirkville, Ora, Providence and Tippah soils. Kirkville soils are on flood plains. Ora, Providence, and Tippah soils are on uplands. Also included are small areas of soils that are steep and are moderately well drained. These soils have a alkaline clayey subsoil that is underlain by limestone. Permanent vegetation of grasses and legumes or trees should be maintained on these soils.

Maben and Smithdale soils are mostly used as woodland.

They are poorly suited to row crops, small grains, and pasture grasses and legumes because of steepness of slope and severe erosion hazard.

The soils in this map unit are moderately suited to loblolly and shortleaf pine. Concerns in woodland management for Maben soil are moderate, but plant competition is a slight concern. The hazard of erosion is a slight concern. Concerns in woodland management for Smithdale soil are slight, but equipment use is a moderate concern. The hazard of erosion is a moderate concern. Concerns in woodland management for harvesting the tree crop are moderate. Steepness of slope and rapid runoff cause washouts and formation of gullies on skid trails and haul roads. These can be alleviated by harvesting in drier periods, by placing skid trails, log landings, and haul roads properly and within limiting grades. After harvesting, water bars are needed on all sloping roads to prevent gully erosion. Roads should be seeded to grass to control erosion.

Maben soil has severe limitation for urban use. Low strength as it affects local roads and streets, high shrink-swell potential, and steepness of slope are major limitations. Special design and proper installation can alleviate these limitations. The steepness of slope and moderately slow permeability of the clayey subsoil are severe limitations to use as septic tank absorption fields. These limitations can be alleviated by enlarging the absorption fields and installing the septic tank absorption fields on the contour.

Smithdale soils have severe limitation to most urban uses because of steepness of slope. This limitation can be alleviated by special design and proper installation and by bank stabilization and plantings to control soil erosion. Steepness of slope is a severe limitation to use

of this soil as septic tank absorption fields. This limitation can be alleviated by the installing the absorption fields on the contour.

The soils in this map unit are in capability subclass VIIe. Maben soil is in woodland suitability group 8C, and Smithdale soil is in woodland suitability group 8R.

Prime Farmland

In this section, prime farmland is defined and discussed, and the prime farmland soils in Rankin County are listed in table 5.

Prime farmland is one of several kinds of important farmland defined by the U.S. Department of Agriculture. It is of major importance in meeting the nation's short- and long-range needs for food and fiber. The acreage of high-quality farmland is limited, and the U.S. Department of Agriculture recognizes that government at local, state, and federal levels, as well as individuals, must encourage and facilitate the wise use of our nation's prime farmland.

Prime farmland soils, as defined by the U.S. Department of Agriculture, are soils that are best suited to producing food, feed, forage, fiber, and oilseed crops. Such soils have properties that are favorable for the economic production of sustained high yields of crops. The soils need only to be treated and managed using acceptable farming methods. The moisture supply, of course, must be adequate, and the growing season has to be sufficiently long. Prime farmland soils produce the highest yields with minimal inputs of energy and economic resources. Farming these soils results in the least damage to the environment.

Prime farmland soils may presently be in use as cropland, pasture, or woodland, or they may be in other uses. They either are used for producing food or fiber or are available for these uses. Urban or built-up land, public land, and water areas cannot be considered prime farmland. Urban or built-up land is any contiguous unit of land 10 acres or more in size that is used for such purposes as housing, industrial, and commercial sites, sites for institutions or public buildings, small parks, golf courses, cemeteries, railroad yards, airports, sanitary landfills, sewage treatment plants, and water control structures. Public land is land not available for farming in national forests, national parks, military reservations, and state parks.

Prime farmland soils usually get an adequate and dependable supply of moisture from precipitation or irrigation. The temperature and growing season are favorable. The acidity or alkalinity level of the soils is acceptable. The soils have few or no rocks and are permeable to water and air. They are not excessively erodible or saturated with water for long periods and are not subject to frequent flooding during the growing season. The slope ranges mainly from 0 to 5 percent. For more detailed information on the criteria for prime farmland, consult the local staff of the Soil Conservation Service.

About 171,285 acres or about 33 percent of Rankin County meets the soil requirements for prime farmland. Areas are scattered throughout the county, but most areas are in the central and northern parts, mainly in map units 4, 6, and 8 of the general soil map. Approximately 12,000 acres of this prime farmland is used for crops, mainly cotton and soybeans.

Recent trends in land use in some parts of the county, particularly in the western part, has resulted in the loss of some prime farmland to industrial and urban uses. The irreversible loss of prime farmland to other uses puts pressure on marginal lands, which generally are more erodible, droughty, and difficult to cultivate and usually are less productive.

The map units, or soils as listed in table 5 make up prime farmland in Rankin County, and the location of each map unit is shown on the detailed soil maps at the back of this publication. The extent of each unit is given in table 4. The soil qualities that affect use and management are described in the section "Detailed Soil Map Units." This list does not constitute a recommendation for a particular land use.

Soils that have limitations, such as a high water table or flooding, may qualify as prime farmland if these limitations are overcome by such measures as drainage or flood control. In the following list, the measures needed to overcome the limitations of a map unit, if any, are shown in parentheses after the map unit name. Onsite evaluation is necessary to determine if the limitations have been overcome by the corrective measures.

Use and Management of the Soils

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help avoid soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavior characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis for predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as woodland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreation facilities; and for wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern that is in harmony with nature.

Contractors can use this survey to locate sources of sand and gravel, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

Crops and Pasture

James S. Parkman, conservation agronomist, Soil Conservation Service, helped prepare this section.

General management needed for crops and pasture is suggested in this section. The crops or pasture plants best suited to the soils, including some not commonly grown in the survey area, are identified; the system of land capability classification used by the Soil Conservation Service is explained; and the estimated yields of the main crops and hay and pasture plants are listed for each soil.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under "Detailed Soil Map Units." Specific information can be obtained from the local office of the Soil Conservation Service or the Cooperative Extension Service.

Cultivated Crops

The purpose of cultivating the soil is to reduce or eliminate weed competition and to help prevent compaction and crusting of the surface layer. Cultivation, however, causes loss of plant nutrients and increases the hazard of erosion. Suitable cropping and tillage systems are needed to maintain organic matter, to help control erosion, and to increase or maintain fertility.

Keeping close-growing, or sod crops, and annual cover crops of the soil, growing legumes in sequence with row crops, and establishing a crop rotation system that includes high residue producing crops will help to maintain the content of organic matter, control erosion, and increase fertility of the soil. The number of years that a row crop can be grown depends on the type of soil, the slope, and the degree of erosion hazard. After harvesting, crop residue should be shredded and left on the surface or disked into the surface layer of soils that are subject to flooding.

Fertilizer should be applied on all cropland to increase yields. Lime is also needed on most soils in Rankin County. The need for fertilizer and lime varies with the soil, the type of the crop, and on the expected level of yield. Soil tests can help in determining the kinds and amounts of fertilizer and lime can be applied. Recommendations can be obtained from the local office of the Cooperative Extension Service.

Some of the soils in the county have inadequate surface drainage and internal drainage. On these soils, tile drainage systems and surface field ditches should be installed. Diversions are needed to protect bottom land from excessive runoff from the higher elevations. Contour farming is needed on gently sloping soils to help control erosion and conserve moisture.

Pasture

A well managed pasture consists of a good vegetative cover and a vigorous root system to help control erosion, provide forage and feed for livestock, and increase the content of organic matter in the soil.

The soils of Rankin County are suited to a wide variety of grasses and legumes. Some soils are better suited than others. The local office of the Soil Conservation Service can suggest suitable plants for individual soils. The type of livestock enterprise and the individual needs of the farmer should also be considered.

Perennial grasses that are widely adapted to the soils are common bermudagrass, dallisgrass, improved bermudagrass, bahiagrass, and tall fescue. Legumes that are well adapted are white clover, crimson clover, arrowleaf clover, and annual lespedeza.

Fertilizer and lime are beneficial to all pastures. The amounts, kinds, and frequency of application should be determined by a soil test. Grasses and legumes grow better and produce more forage when proper stocking, rotation grazing, and other pasture management practices are used. Soil erosion is the major problem on most of the cropland and pasture in the county. Erosion is a hazard on soils that have slope of more than 2 percent.

Loss of the surface layer by erosion reduces productivity and mixes the subsoil into the surface layer. Loss of the surface layer by erosion is more serious on soils that have a fragipan, such as Providence, Ora, and Savannah soils, because it reduces the thickness of the root zone. Reducing soil erosion on farmland results in less sediment entering streams; therefore, a better quality of water for municipal use, for recreation, and for fish and wildlife can be maintained.

Soil drainage is a major concern in management on some of the acreage used for crops and pasture in Rankin County. If an artificial drainage system is not installed, the crops will be damaged in most years on the poorly drained and somewhat poorly drained soils. Gillsburg, Guyton, Tippo, and Urbo soils are examples of soils that need a drainage system.

Yields Per Acre

The average yields per acre that can be expected of the principal crops under a high level of management are shown in table 6. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors.

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations are also considered.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates and dates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure, and green manure crops; and harvesting that insures the smallest possible loss.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in table 6 are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Soil Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils for those crops.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for use as cropland. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major, and generally expensive, landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for woodland and for engineering purposes.

In the capability system, soils are generally grouped at three levels: capability class, subclass, and unit. Only class and subclass are used in this survey. These levels are defined in the following paragraphs.

Capability classes, the broadest groups, are designated by Roman numerals I through VIII. The numerals indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class I soils have few limitations that restrict their use.

Class II soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices.

Class III soils have severe limitations that reduce the choice of plants or that require special conservation practices, or both.

Class IV soils have very severe limitations that reduce the choice of plants or that require very careful management, or both.

Class V soils are not likely to erode, but they have other limitations, impractical to remove, that limit their use. No soils in Class V are recognized in Rankin County.

Class VI soils have severe limitations that make them generally unsuitable for cultivation.

Class VII soils have very severe limitations that make them unsuitable for cultivation.

Class VIII soils and miscellaneous areas have limitations that nearly preclude their use for commercial crop production. No soils in Class VIII are recognized in Rankin County.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e* or *w* to the class numeral, for example, IIe. The letter *e* shows that the main limitation is risk of erosion unless a close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage).

There are no subclasses in class I because the soils of this class have few limitations.

The acreage of soils in each capability class and subclass is shown in table 7. The capability classification of each map unit is given in the section "Detailed Soil Map Units."

Woodland Management and Productivity

Paul W. Dillard, forester, Soil Conservation Service, helped prepare this section.

Commercial forests cover about 61 percent or approximately 310,000 acres, of Rankin County *(10)*. The commercial forests are made up of five major forest types. The approximate extent of each forest type is 34 percent, loblolly-shortleaf pine; 22 percent, oak-pine; 24 percent, oak-hickory; and 20 percent, oak-gum-cypress.

Farmers and other private owners control about 92 percent of the forest land, public ownership about 4 percent, and the forest industry about 4 percent.

The future use of the forests in Rankin County will be determined to a great extent by the ownership objectives of the farmers and other private owners. The proximity of Jackson, the state's largest city, creates pressure for residential development, recreational uses, and other competing demands that affect the use of the land for commercial timber production.

It must be demonstrated to the owners that timber production is a compatible objective for the forest lands in Rankin County if the timber resources are to be managed to make substantial contributions to satisfy the increased demand for southern timber supplies.

Good forest management should maintain or enhance soil productivity and water quality. Forest management activities that have the greatest potential for adversely affecting soil productivity and water quality are timber harvesting and site preparation for future tree crops. Poor application of these practices may cause erosion, nutrient depletion, and compaction. Site-specific forest management prescriptions that consider topography, erosion hazard, season, and natural site fertility help to prevent damage to soil and water resources.

Grazing is suitable secondary use for most of the woodland. Grasses, legumes, forbs, and many of the woody plants in the understory of woodland stands can be utilized for forage. Stocking the proper number of grazing animals for the amount of forage produced prevents damage of desirable trees. This section contains information about the production of both wood crops and forage in woodland.

Soils vary in their ability to produce trees. Depth, fertility, texture, and the available water capacity influence tree growth. Elevation, aspect, and climate determine the kinds of trees that can grow on a site. Available water capacity and depth of the root zone are major influences of tree growth.

This soil survey can be used by woodland managers planning ways to increase the productivity of forest land. Some soils respond better to fertilization than others, some are more susceptible to landslides and erosion after building roads and harvesting timber, and some require special efforts to reforest. In the section "Detailed soil map units," each map unit in the survey area suitable for producing timber presents information about productivity, limitations for harvesting timber, and management concerns for producing timber. The common forest understory plants are also listed. Table 8 summarizes this forestry information and rates the soils for a number of factors to be considered in management. *Slight, moderate*, and *severe* are used to indicate the degree of the major soil limitations to be considered in forest management.

The first tree listed for each soil under the column "Important trees" is the indicator species for that soil. An indicator species is a tree that is common in the area and that is generally the most productive on a given soil.

Table 8 lists the *ordination symbol* for each soil. The first part of the ordination symbol, a number, indicates the potential productivity of a soil for the indicator species in cubic meters per hectare. The larger the number, the greater the potential productivity. Potential productivity is based on the site index and the point where mean annual increment is the greatest.

The second part of the ordination symbol, a letter, indicates the major kind of soil limitation for use and management. The letter *R* indicates a soil that has a significant limitation because of steepness of slope. The letter *W* indicates a soil in which excessive water, either seasonal or year-round, causes a significant limitation. The letter *D* indicates a soil that has a limitation because of restricted rooting depth, such as a shallow soil that is underlain by hard rock, hardpan, or other layers that restrict roots. The letter *C* indicates a soil that has a limitation because of the kind or amount of clay in the

upper part of the soil. The letter *A* indicates a soil that has no significant restrictions or limitations for forest use and management. If a soil has more than one limitation, the priority is as follows: R, W, D, and C.

Ratings of the *erosion hazard* indicate the probability that damage may occur if site preparation activities or harvesting operations expose the soil. The risk is *slight* if no particular preventive measures are needed under ordinary conditions and *moderate* if erosion control measures are needed for particular silvicultural activities. Ratings of *moderate* indicate the need for construction of higher standard roads, additional maintenance of roads, additional care in planning of harvesting and reforestation operations, or use of specialized equipment.

Ratings of *equipment limitation* indicate limits on the use of forest management equipment, year-round or seasonal, because of such soil characteristics as slope, wetness, stoniness, or susceptibility of the surface layer to compaction. As slope gradient and length increase, it becomes more difficult to use wheeled equipment. On the steeper slopes, tracked equipment must be used. On the steepest slopes, even tracked equipment cannot operate; more sophisticated systems are needed. The rating is *slight* if equipment use is restricted by soil wetness for less than 2 months and if special equipment is not needed. The rating is *moderate* if slopes are steep enough that wheeled equipment cannot be operated safely across the slope, if soil wetness restricts equipment use from 2 to 6 months per year, if stoniness restricts ground-based equipment, or if special equipment is needed to avoid or reduce soil compaction. The rating is *severe* if slopes are steep enough that tracked equipment cannot be operated safely across the slope, if soil wetness restricts equipment use for more than 6 months per year, if stoniness restricts ground-based equipment, or if special equipment is needed to avoid or reduce soil compaction. Ratings of *moderate* or *severe* indicate a need to choose the most suitable equipment and to carefully plan the timing of harvesting and other management operations.

Ratings of *seedling mortality* refer to the probability of death of naturally occurring or properly planted seedlings of good stock in periods of normal rainfall as influenced by kinds of soil or topographic features. *Seedling mortality* is caused primarily by too much water or too little water. The factors used in rating a soil for seedling mortality are texture of the surface layer, depth and duration of the water table, rock fragments in the surface layer, rooting depth, and the aspect of the slope. Mortality generally is greatest on soils that have a sandy or clayey surface layer. The risk is *slight* if, after site preparation, expected mortality is less than 25 percent and *moderate* if expected mortality is between 25 and 50 percent. Ratings of *moderate* indicate that it may be necessary to use containerized or larger than usual planting stock or to make special site preparations, such as bedding, furrowing, installing surface drainage, or providing artificial shade for seedings. Reinforcement planting is often needed if the risk is *moderate*.

Ratings of *windthrow hazard* consider the likelihood of trees being uprooted by the wind. Restricted rooting depth is the main reason for windthrow. Rooting depth can be restricted by a high water table, fragipan, or bedrock, or by a combination of such factors as soil wetness, texture, structure, and depth. The risk is *slight* if strong winds cause trees to break but do not uproot them and *moderate* if strong winds cause an occasional tree to be blown over and many trees to break. Ratings of *moderate* indicate the need for care in thinning or possibly not thinning. Specialized equipment may be needed to avoid damage to shallow root systems in partial cutting operations. A plan for periodic salvage of windthrown trees and the maintenance of a road and trail system may be needed.

Ratings of *plant competition* indicate the likelihood of the growth or invasion of undesirable plants. *Plant competition* becomes more severe on the more productive soils, on poorly drained soils, and on soils having a restricted root zone that holds moisture. The risk is *slight* if competition from undesirable plants reduces adequate natural or artificial reforestation but does not necessitate intensive site preparation and maintenance. The risk is *moderate* if competition from undesirable plants reduces natural or artificial reforestation to the extent that intensive site preparation and maintenance are needed. A *moderate* rating indicates the need for site preparation to ensure the development of an adequately stocked stand. Managers must plan site preparation measures to ensure reforestation without delays.

The potential productivity of *common trees* on a soil is expressed as a *site index*. Common trees are listed in the order of their observed general occurrence. Generally, only two or three tree species dominate.

The soils that are commonly used to produce timber have the yield predicted in cubic feet. The yield is predicted at the point where mean annual increment culminates.

The *site index* is determined by taking height measurements and determining the age of selected trees within stands of a given species. This index is the average height, in feet, that the trees attain in a specified number of years. This index applies to fully stocked, even-aged, unmanaged stands. Site index values shown in table 8 are based on measurements of selected sites in Rankin County and/or other counties and are based on published site index tables.

The *productivity class* represents an expected volume produced by the most important trees, expressed in cubic meters per hectare per year. Cubic meters per hectare can be converted to cubic feet per acre by multiplying by 14.3. It can be converted to board feet by multiplying by a factor of about 71. For example, a

productivity class of 8 means the soil can be expected to produce 114 cubic feet per acre per year at the point where mean annual increment culminates, or about 568 board feet per acre per year.

Trees to plant are those that are used for reforestation or, if suitable conditions exist, natural regeneration. They are suited to the soils and will produce a commercial wood crop. Desired product, topographic position (such as a low, wet area), and personal preference are three factors of many that can influence the choice of trees to use for reforestation.

Woodland Understory Vegetation

David W. Sanders, grassland conservationist, Soil Conservation Service, helped prepare this section.

Understory vegetation consists of grasses, forbs, shrubs, and other plants. Some woodland, if well managed, can produce enough understory vegetation to support grazing of livestock or wildlife, or both, without damage to the trees.

The quantity and quality of understory vegetation vary with the kind of soil, the age and kind of trees in the canopy, the density of the canopy, and the depth and condition of the litter. The density of the canopy determines the amount of light that understory plants receive.

Regardless of grazing use, significant changes often occur in kinds and abundance of understory plants as the canopy changes. Forage value ratings are based on the percentage of the existing understory plant community that is made up of preferred and desirable plants as they relate to livestock palatability.

Table 9 shows, for each soil suitable for woodland use, the potential for producing understory vegetation. The total production of understory vegetation includes the herbaceous plants and the leaves, twigs, and fruit of woody plants up to a height of 4 1/2 feet. It is expressed in pounds per acre of air-dry vegetation in a normal year. In a normal year, soil moisture is average during the optimum part of the growing season.

Table 9 also lists the common names of the characteristic vegetation on each soil and the percentage composition, by air-dry weight, of each kind of plant. The table shows the kind and percentage of understory plants expected under a canopy density that is most nearly typical of woodland in which the production of wood crops is highest.

Suitability of Soils for Specified Horticulture Plants

The ratings in table 10 are based on soils in their natural state. Alterations, such as filling, smoothing, reshaping, and draining, create as well as eliminate problems in growing plants. To insure plant survival, a healthy planting stock of suitable species should be planted properly on a well prepared site, and plants and soils should be maintained in good condition.

Soils that have good natural drainage and that warm up early in the spring are well suited to many vegetables. Examples of these soils are the Gillsburg, Kirkville, and Oaklimeter soils on the flood plains and the Cahaba, Leverett, Pelahatchie, Providence, Quitman, Savannah, and Tippah soils on stream terraces and gently sloping uplands.

Table 10 lists the suitability of the soils for grasses, vegetables, fruits and nuts, and ornamental shrubs.

Information and suggestions for growing special crops can be obtained from local offices of the Cooperative Extension Service or the Soil Conservation Service.

Recreation

Ernest E. Dorrill, landscape architect, Soil Conservation Service, helped prepare this section.

In table 11, the soils of the survey area are rated according to the limitations that affect their suitability for recreation. The ratings are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewerlines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation are also important. Soils subject to flooding are limited for recreational use by the duration and intensity of flooding and the season when flooding occurs. In planning recreation facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

In table 11, the degree of soil limitation is expressed as slight, moderate, or severe. *Slight* means that soil properties are generally favorable and that limitations are minor and easily overcome. *Moderate* means that limitations can be overcome or alleviated by planning, design, or special maintenance. *Severe* means that soil properties are unfavorable and that limitations can be offset only by costly soil reclamation, special design, intensive maintenance, limited use, or by a combination of these measures.

The information in table 11 can be supplemented by other information in this survey, for example, interpretations for septic tank absorption fields in table 14 and interpretations for dwellings without basements and for local roads and streets in table 13.

Camp areas (fig. 20) require site preparation such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The best soils have gentle slopes and are not wet

or subject to flooding during the period of use. The surface has few or no stones or boulders, absorbs rainfall readily but remains firm, and is not dusty when dry. Strong slopes and stones or boulders can greatly increase the cost of constructing campsites.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The best soils for picnic areas are firm when wet, are not dusty when dry, are not subject to flooding during the period of use, and do not have slopes, stones, or boulders that increase the cost of shaping sites or of building access roads and parking areas.

Playgrounds require soils that can withstand intensive foot traffic. The best soils are almost level and are not wet or subject to flooding during the season of use. The surface is free of stones and boulders, is firm after rains, and is not dusty when dry. If grading is needed, the depth of the soil over bedrock or a hardpan should be considered.

Paths and trails for hiking and horseback riding should require little or no cutting and filling. The best soils are not wet, are firm after rains, are not dusty when dry, and are not subject to flooding more than once a year during the period of use. They have moderate slopes and few or no stones or boulders on the surface.

Golf fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. The best soils for use as golf fairways are firm when wet, are not dusty when dry, and are not subject to prolonged flooding during the period of use. They have moderate slopes and no stones or boulders on the surface. The suitability of the soil for tees or greens is not considered in rating the soils.

Figure 20.—This campground at the Ross Barnett Reservoir is in an area of Quitman loam, 0 to 2 percent slopes.

Wildlife Habitat

Charles E. Hollis, wildlife biologist, Soil Conservation Service, helped prepare this section.

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the amount and distribution of food, cover, and water. Wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

Rankin County provides habitat for a wide variety of game and nongame wildlife species. Some species, such as the white-tailed deer, cottontail rabbit, squirrel, beaver, and mourning dove, have large stable populations; however, the American alligator, redcockaded woodpecker, river otter, and bald eagle are present only as remnant population.

In table 12, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat.

The potential of the soil is rated good, fair, poor, or very poor. A rating of *good* indicates that the element or kind of habitat is easily established, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected. A rating of *fair* indicates that the element or kind of habitat can be established, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* indicates that limitations are severe for the designated element or kind of habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* indicates that restrictions for the element or kind of habitat are very severe and that unsatisfactory results can be expected. Creating, improving, or maintaining habitat is impractical or impossible.

The elements of wildlife habitat are described in the following paragraphs.

Grain and seed crops are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, and flood hazard. Soil temperature and soil moisture are also considerations. Examples of grain and seed crops are corn, wheat, oats, and ryegrass.

Grasses and legumes are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, flood hazard, and slope. Soil temperature and soil moisture are also considerations. Examples of grasses and legumes are fescue, ryegrass, bahiagrass, clover, and lespedeza.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, and flood hazard. Soil temperature and soil moisture are also considerations. Examples of wild herbaceous plants are bluestem, goldenrod, ragweed, pokeberry, wooly croton, and johnsongrass.

Hardwood trees and woody understory produce mast or other fruit, buds, catkins, twigs, bark, and foliage. Soil properties and features that affect the growth of hardwood trees and shrubs are depth of the root zone, the available water capacity, and wetness. Examples of these plants are oak, poplar, cherry, sweetgum, ash, hawthorn, hickory, blackgum, and maple. Examples of fruit-producing shrubs that are suitable for planting on soils rated *good* are dogwood, autumn-olive, bicolor lespedeza, and crabapple.

Coniferous plants furnish browse and seeds. Soil properties and features that affect the growth of coniferous trees, shrubs, and ground cover are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are loblolly pine, shortleaf pine, baldcypress, and eastern redcedar.

Shrubs are bushy woody plants that produce fruit, buds, twigs, bark, and foliage. Soil properties and features that affect the growth of shrubs are depth of the root zone, available water capacity, salinity, and soil moisture. Examples of shrubs are farkleberry, southern bayberry, sumac, and American beautyberry.

Wetland plants are annual and perennial, wild herbaceous plants that grow on moist or wet sites. Submerged or floating aquatic plants are excluded. Soil properties and features affecting wetland plants are texture of the surface layer, wetness, and slope. Examples of wetland plants are smartweed, wild millet, wildrice, lizard tail, fall panicum, rushes, sedges, and cattails.

Shallow water areas have an average depth of less than 5 feet. Some are naturally wet areas. Others are created by dams, levees, or other water-control structures. Soil properties and features affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability. Examples of shallow water areas are beaver ponds, marshes, greentree reservoirs, duck fields, and ponds.

The habitat for various kinds of wildlife is described in the following paragraphs.

Habitat for openland wildlife consists of cropland, grassland, and idle areas. About 49,850 acres in Rankin

County is used as cropland. The crops are mainly soybeans, cotton, and wheat. The quality of cropland as habitat for wildlife ranges from poor to excellent with an average of fair. The most common factor limiting cropland habitat value is the lack of year-round cover, food, and diverse areas. Conservation practices, such as no-till, narrow based terraces, field borders, crop rotation, and windbreaks, are often needed to improve cropland habitat. About 90,000 acres in the county is used as grassland. This acreage has an average habitat value of fair. The grassland areas are well distributed throughout the county and consist of perennial grasses, such as common bermudagrass, dallisgrass, coastal bermudagrass, bahiagrass, and tall fescue; temporary grasses, such as ryegrass, wheat, oats, and sudax; and legumes such as white clover, crimson clover, and annual lespedeza. Grassland habitat value can be improved by planting windbreaks and maintaining livestock watering facilities by proper pasture management, and by using other conservation practices that will increase food, cover, and diversity to attract and maintain wildlife in the grassland areas.

The wildlife attracted to these areas include bobwhite quail, snipe, mourning dove, field sparrow, crows, meadowlark, cottontail rabbit, turkey, coyotes, and red fox.

Habitat for woodland wildlife consists of areas of deciduous plants or coniferous plants, or both, and associated grasses, legumes, and wild herbaceous plants. About 310,000 acres in Rankin County is used as woodland. The woodland areas consist of 4 major forest types: loblolly and shortleaf pines, oak-pine, oak-hickory, and oak-gum-cypress. The overall quality of woodland habitat is moderate. Overstocking, monoculture, short rotations, and poor species comparison are some of the major factors reducing the quality of the woodland habitat. Forest management practices, such as thinning, prescribed burning, controlled grazing, harvesting, and site regeneration, have the greatest potential for improving woodland wildlife habitat. Wildlife attracted to these areas include wild turkey, red-shouldered hawks, woodcock, owls, woodpeckers, squirrels, bobcats, gray fox, raccoon, and white-tailed deer.

Habitat for wetland wildlife consists of open, marshy or swampy shallow water areas that are generally associated with lakes, rivers and streams. Some of the wildlife attracted to such areas are ducks, geese, shore birds, herons, muskrat, crayfish, frogs, mink, and beaver.

Engineering

Robert L. Tisdale, agricultural engineer, Soil Conservation Service, helped prepare this section.

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. The ratings are given in the following tables: Building site development, Sanitary facilities, Construction materials, and Water management. The ratings are based on observed performance of the soils and on the estimated data and test data in the "Soil properties" section.

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil within a depth of 5 or 6 feet, and because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations must be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about grain-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 to 6 feet of the surface, soil wetness, depth to a seasonal high water table, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kind of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to: evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, earthfill, and topsoil; plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

Building Site Development

Table 13 shows the degree and kind of soil limitations that affect shallow excavations, dwellings with and without basements, small commercial buildings, local roads and streets, and lawns and landscaping. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required. Special feasibility studies may be required where the soil limitations are severe.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for basements, graves, utility lines, open ditches, and other purposes. The ratings are based on soil properties, site features, and observed performance of the soils. The ease of digging, filling, and compacting is affected by the depth to bedrock, a cemented pan, or a very firm dense layer; stone content; soil texture; and slope. The time of the year that excavations can be made is affected by the depth to a seasonal high water table and the susceptibility of the soil to flooding. The resistance of the excavation walls or banks to sloughing or caving is affected by soil texture and the depth to the water table.

Dwellings and small commercial buildings are structures built on shallow foundations on undisturbed soil. The load limit is the same as that for single-family dwellings no higher than three stories. Ratings are made for small commercial buildings without basements, for dwellings with basements, and for dwellings without basements. The ratings are based on soil properties, site features, and observed performance of the soils. A high water table, flooding, shrink-swell potential, and organic layers can cause the movement of footings. A high water table, depth to bedrock or to a cemented pan, large stones, and flooding affect the ease of excavation and construction. Landscaping and grading that require cuts and fills of more than 5 to 6 feet are not considered.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material, a base of gravel, crushed rock, or stabilized soil material, and a flexible or rigid surface. Cuts and fills are generally limited to less than 6 feet. The ratings are based on soil properties, site features, and observed performance of the soils. Depth to bedrock or to a cemented pan, a high water table, flooding, large stones, and slope affect the ease of excavating and grading. Soil strength (as inferred from the engineering classification of the soil), shrink-swell potential, frost-action potential, and depth to a high water table affect the traffic-supporting capacity.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. The ratings are based on soil properties, site features, and observed performance of the soils. Soil reaction, a high water table, depth to bedrock or to a cemented pan, the available water capacity in the upper 40 inches, and the content of salts, sodium, and sulfidic materials affect plant growth. Flooding, wetness, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer affect trafficability after vegetation is established.

Sanitary Facilities

Table 14 shows the degree and the kind of soil limitations that affect septic tank absorption fields, sewage lagoons, and sanitary landfills. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required.

Table 14 also shows the suitability of the soils for use as daily cover for landfills. A rating of *good* indicates that soil properties and site features are favorable for the use and that good performance and low maintenance can be expected; *fair* indicates that soil properties and site features are moderately favorable for the use and one or more soil properties or site features make the soil less desirable than the soils rated good; and *poor* indicates that one or more soil properties or site features are unfavorable for the use and overcoming the unfavorable properties requires special design, extra maintenance, or costly alteration.

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 72 inches is evaluated. The ratings are based on soil properties, site features, and observed performance of the soils. Permeability, a high water table, depth to bedrock or to a cemented pan, and flooding affect absorption of the effluent. Large stones and bedrock or a cemented pan interfere with installation.

Unsatisfactory performance of septic tank absorption fields, including excessively slow absorption of effluent, surfacing of effluent, and hillside seepage, can affect public health. Ground water can be polluted if highly permeable sand and gravel or fractured bedrock is less than 4 feet below the base of the absorption field, if slope is excessive, or if the water table is near the surface. There must be unsaturated soil material beneath

the absorption field to filter the effluent effectively. Many local ordinances require that this material be of a certain thickness.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Lagoons generally are designed to hold the sewage within a depth of 2 to 5 feet. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water.

Table 14 gives ratings for the natural soil that makes up the lagoon floor. The surface layer and, generally, 1 or 2 feet of soil material below the surface layer are excavated to provide material for the embankments. The ratings are based on soil properties, site features, and observed performance of the soils. Considered in the ratings are slope, permeability, a high water table, flooding, and content of organic matter.

Excessive seepage due to rapid permeability of the soil or a water table that is high enough to raise the level of sewage in the lagoon causes a lagoon to function unsatisfactorily. Pollution results if seepage is excessive or if floodwater overtops the lagoon. A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope can cause construction problems.

Sanitary landfills are areas where solid waste is disposed of by burying it in soil. There are two types of landfill—trench and area. In a trench landfill, the waste is placed in a trench. It is spread, compacted, and covered daily with a thin layer of soil excavated at the site. In an area landfill, the waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site.

Both types of landfill must be able to bear heavy vehicular traffic. Both types involve a risk of ground water pollution. Ease of excavation and revegetation needs to be considered.

The ratings in table 14 are based on soil properties, site features, and observed performance of the soils. Permeability, depth to bedrock or to a cemented pan, a high water table, slope, and flooding affect both types of landfill. Texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium affect trench type landfills. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, a limitation rated slight or moderate may not be valid. Onsite investigation is needed.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area type sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste.

Soil texture, wetness, coarse fragments, and slope affect the ease of removing and spreading the material during wet and dry periods. Loamy or silty soils that are free of large stones or excess gravel are the best cover for a landfill. Clayey soils are sticky or cloddy and are difficult to spread.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over the water table to permit revegetation. The soil material used as final cover for a landfill should be suitable for plants. The surface layer generally has the best workability, more organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

Construction Materials

Table 15 gives information about the soils as a source of roadfill, sand, gravel, and topsoil. The soils are rated *good, fair,* or *poor* as a source of roadfill and topsoil. They are rated as a probable or improbable source of sand and gravel. The ratings are based on soil properties and site features that affect the removal of the soil and its use as construction material. Normal compaction, minor processing, and other standard construction practices are assumed. Each soil is evaluated to a depth of 5 or 6 feet.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the soil material below the surface layer to a depth of 5 or 6 feet. It is assumed that soil layers will be mixed during excavating and spreading. Many soils have layers of contrasting suitability within their profile. The table showing engineering index properties provides detailed information about each soil layer. This information can help determine the suitability of each layer for use as roadfill. The performance of soil after it is stabilized with lime or cement is not considered in the ratings.

The ratings are based on soil properties, site features, and observed performance of the soils. The thickness of suitable material is a major consideration. The ease of excavation is affected by large stones, a high water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the engineering classification of the soil) and shrink-swell potential.

Soils rated *good* contain significant amounts of sand or gravel or both. They have at least 5 feet of suitable material, low shrink-swell potential, few cobbles and stones, and slopes of 15 percent or less. Depth to the water table is more than 3 feet. Soils rated *fair* are more than 35 percent silt- and clay-sized particles and have a plasticity index of less than 10. They have moderate

shrink-swell potential, slopes of 15 to 25 percent, or many stones. Depth to the water table is 1 to 3 feet. Soils rated *poor* have a plasticity index of more than 10, a high shrink-swell potential, many stones, or slopes of more than 25 percent. They are wet, and the depth to the water table is less than 1 foot. They may have layers of suitable material, but the material is less than 3 feet thick.

Sand and gravel are natural aggregates suitable for commercial use with a minimum of processing. Sand and gravel are used in many kinds of construction. Specifications for each use vary widely. In table 15, only the probability of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material.

The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the engineering classification of the soil), the thickness of suitable material, and the content of rock fragments. Kinds of rock, acidity, and stratification are given in the soil series descriptions. Gradation of grain sizes is given in the table on engineering index properties.

A soil rated as a probable source has a layer of clean sand or gravel or a layer of sand or gravel that is up to 12 percent silty fines. This material must be at least 3 feet thick and less than 50 percent, by weight, large stones. All other soils are rated as an improbable source. Coarse fragments of soft bedrock, such as shale and siltstone, are not considered to be sand and gravel.

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area.

Plant growth is affected by toxic material and by such properties as soil reaction, available water capacity, and fertility. The ease of excavating, loading, and spreading is affected by rock fragments, slope, a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, a water table, rock fragments, bedrock, and toxic material.

Soils rated *good* have friable, loamy material to a depth of at least 40 inches. They are free of stones and cobbles, have little or no gravel, and have slopes of less than 8 percent. They are low in content of soluble salts, are naturally fertile or respond well to fertilizer, and are not so wet that excavation is difficult.

Soils rated *fair* are sandy soils, loamy soils that have a relatively high content of clay, soils that have only 20 to 40 inches of suitable material, soils that have an appreciable amount of gravel, stones, or soluble salts, or soils that have slopes of 8 to 15 percent. The soils are not so wet that excavation is difficult.

Soils rated *poor* are very sandy or clayey, have less than 20 inches of suitable material, have a large amount of gravel, stones, or soluble salts, have slopes of more than 15 percent, or have a seasonal water table at or near the surface.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and releases a variety of plant-available nutrients as it decomposes.

Water Management

Table 16 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; and aquifer-fed ponds. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and are easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increase in construction costs, and possibly increased maintenance are required.

This table also gives the restrictive features that affect each soil for drainage, irrigation, terraces and diversions, and grassed waterways.

Pond reservoir areas hold water (fig. 21) behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

Figure 21.—Fishing is one of many activities enjoyed at the Ross Barnett Reservoir recreation areas.

Aquifer-fed excavated ponds are pits or dugouts that extend to a ground-water aquifer or to a depth below a permanent water table. Excluded are ponds that are fed only by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Excavated ponds are affected by depth to a permanent water table, permeability of the aquifer, and the salinity of the soil. Depth to bedrock and the content of large stones affect the ease of excavation.

Drainage is the removal of excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on the depth to bedrock, to a cemented pan, or to other layers that affect the rate of water movement; permeability; depth to a high water table or depth of standing water if the soil is subject to ponding; slope; susceptibility to flooding; subsidence of organic layers; and potential frost action. Excavating and grading and the stability of ditchbanks are affected by depth to bedrock or to a cemented pan, large stones, slope, and the hazard of cutbanks caving. The productivity of the soil after drainage is adversely affected by extreme acidity or by toxic substances in the root zone, such as salts, sodium, or sulfur. Availability of drainage outlets is not considered in the ratings.

Irrigation is the controlled application of water to supplement rainfall and support plant growth. The design and management of an irrigation system are affected by depth to the water table, the need for drainage, flooding, available water capacity, intake rate, permeability, erosion hazard, and slope. The construction of a system is affected by large stones and depth to bedrock or to a cemented pan. The performance of a system is affected by the depth of the root zone, the amount of salts or sodium, and soil reaction.

Terraces and diversions are embankments or a combination of channels and ridges constructed across

a slope to reduce erosion and conserve moisture by intercepting runoff. Slope, wetness, large stones, and depth to bedrock or to a cemented pan affect the construction of terraces and diversions. A restricted rooting depth, a severe hazard of wind or water erosion, an excessively coarse texture, and restricted permeability adversely affect maintenance.

Grassed waterways are natural or constructed channels, generally broad and shallow, that conduct surface water to outlets at a nonerosive velocity. Large stones, wetness, slope, and depth to bedrock or to a cemented pan affect the construction of grassed waterways. A hazard of wind erosion, low available water capacity, restricted rooting depth, toxic substances such as salts or sodium, and restricted permeability adversely affect the growth and maintenance of the grass after construction.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey. The data and the estimates of soil and water features, listed in tables, are explained on the following pages.

Soil properties are determined by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help characterize key soils.

The estimates of soil properties shown in the tables include the range of grain-size distribution and Atterberg limits, the engineering classifications, and the physical and chemical properties of the major layers of each soil. Pertinent soil and water features also are given.

Engineering Index Properties

Table 17 gives estimates of the engineering classification and of the range of index properties for the major layers of each soil in the survey area. Most soils have layers of contrasting properties within the upper 5 or 6 feet.

Depth to the upper and lower boundaries of each layer is indicated. The range in depth and information on other properties of each layer are given for each soil series under "Soil Series and Their Morphology."

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is as much as 15 percent, an appropriate modifier is added, for example, "gravelly." Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system *(2)* and the system adopted by the American Association of State Highway and Transportation Officials *(1)*.

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to grain-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, SP-SM.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of grain-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20, or higher, for the poorest.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area, or from nearby areas, and on field examination.

The estimates of grain-size distribution, liquid limit, and plasticity index are rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is omitted in the table.

Physical and Chemical Properties

Table 18 shows estimates of some characteristics and features that affect soil behavior. These estimates are given for the major layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Clay as a soil separate, or component, consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this table, the estimated clay content of each major soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The amount and kind of clay greatly affect the fertility and physical condition of the soil. They influence the soil's absorption of cations, moisture retention, shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at 1/3 bar moisture tension. Weight is determined after drying the soil at 105 degrees C. In this table, the estimated moist bulk density of each major soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. A bulk density of more than 1.6 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Permeability refers to the ability of a soil to transmit water or air. The estimates indicate the rate of downward movement of water when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems, septic tank absorption fields, and construction where the rate of water movement under saturated conditions affects behavior.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage in each major soil layer is stated in inches of water per inch of soil. The capacity varies, depending on soil properties that affect the retention of water and the depth of the root zone. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Soil reaction is a measure of acidity or alkalinity and is expressed as a range in pH values. The range in pH of each major horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Shrink-swell potential is the potential for volume change in a soil with a loss or gain in moisture. Volume change occurs mainly because of the interaction of clay minerals with water and varies with the amount and type of clay minerals in the soil. The size of the load on the soil and the magnitude of the change in soil moisture content influence the amount of swelling of soils in place. Laboratory measurements of swelling of undisturbed clods were made for many soils. For others, swelling was estimated on the basis of the kind and amount of clay minerals in the soil and on measurements of similar soils.

If the shrink-swell potential is rated moderate to very high, shrinking and swelling can cause damage to buildings, roads, and other structures. Special design is often needed.

Shrink-swell potential classes are based on the change in length of an unconfined clod as moisture content is increased from air-dry to field capacity. The change is based on the soil fraction less than 2 millimeters in diameter. The classes are *low*, a change of less than 3 percent; *moderate*, 3 to 6 percent; and *high*, more than 6 percent. *Very high*, greater than 9 percent, is sometimes used.

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) to predict the average annual rate of soil loss by sheet and rill erosion. Losses are expressed in tons per acre per year. These estimates are based primarily on percentage of silt, sand, and organic matter (up to 4 percent) and on soil structure and permeability. Values of K range from 0.02 to 0.69. The higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur over a sustained period without affecting crop productivity. The rate is expressed in tons per acre per year.

Organic matter is the plant and animal residue in the soil at various stages of decomposition.

In table 18, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter of a soil can be maintained or increased by returning crop residue to the soil. Organic matter affects the available water capacity,

infiltration rate, and tilth. It is a source of nitrogen and other nutrients for crops.

Soil and Water Features

Table 19 gives estimates of various soil and water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are used to estimate runoff from precipitation. Soils are assigned to one of four groups. They are grouped according to the intake of water when the soils are thoroughly wet and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have high shrink-swell potential, soils that have a permanent high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

Flooding, the temporary covering of the soil surface by flowing water, is caused by overflowing streams, by runoff from adjacent slopes, or by inflow from high tides. Shallow water standing or flowing for short periods after rainfall or snowmelt is not considered flooding. Standing water in swamps and marshes or in a closed depression is considered ponding.

Table 19 gives the frequency and duration of flooding and the time of year when flooding is most likely to occur.

Frequency, duration, and probable dates of occurrence are estimated. Frequency generally is expressed as *none, rare, occasional,* or *frequent. None* means that flooding is not probable. *Rare* means that flooding is unlikely but possible under unusual weather conditions (there is a near 0 to 5 percent chance of flooding in any year). *Occasional* means that flooding occurs infrequently under normal weather conditions (there is a 5 to 50 percent chance of flooding in any year). *Frequent* means that flooding occurs often under normal weather conditions (there is more than a 50 percent chance of flooding in any year). *common* is used when classification as occasional or frequent does not affect interpretations. Duration is expressed as *brief* (2 to 7 days), *long* (7 days to 1 month), and *very long* (more than 1 month). The time of year that floods are most likely to occur is expressed in months. November-May, for example, means that flooding can occur during the period November through May. About two-thirds to three-fourths of all flooding occurs during the stated period.

The information on flooding is based on evidence in the soil profile, namely, thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and absence of distinctive horizons, which are characteristic of soils that are not subject to flooding.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

High water table (seasonal) is the highest level of a saturated zone in the soil in most years. The depth to a seasonal high water table applies to undrained soils. The estimates are based mainly on the evidence of a saturated zone, namely grayish colors or mottles in the soil. Indicated in table 19 are the depth to the seasonal high water table; the kind of water table, that is, *perched, artesian*, or *apparent;* and the months of the year that the water table commonly is highest. A water table that is seasonally high for less than 1 month is not indicated in table 19.

An *apparent* water table is a thick zone of free water in the soil. It is indicated by the level at which water stands in an uncased borehole after adequate time is allowed for adjustment in the surrounding soil. An *artesian* water table is under hydrostatic head, generally below an impermeable layer. When this layer is penetrated, the water level rises in an uncased borehole. A *perched* water table is water standing above an unsaturated zone. In places an upper, or perched, water table is separated from a lower one by a dry zone.

The two numbers in the "High water table-Depth" column indicate the normal range in depth to a saturated zone. Depth is given to the nearest half foot. The first numeral in the range indicates the highest water level. A plus sign preceding the range in depth indicates that the water table is above the surface of the soil. "More than 6.0" indicates that the water table is below a depth of 6 feet or that the water table exists for less than a month.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that dissolves or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and

electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors creates a severely corrosive environment. The steel in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than steel in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low*, *moderate*, or *high*, is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion is also expressed as *moderate* or *high*. It is based on soil texture, acidity, and the amount of sulfates in the saturation extract.

Physical and Chemical Analyses of Selected Soils

D.E. Pettry, professor, Soil Science, Mississippi State University, prepared this section.

The results of physical analysis of several typical pedons in the survey area are given in table 20. The data are for soils sampled at carefully selected sites. The pedons are typical of the series and are described in the section "Soil Series and Their Morphology." Soil samples were analyzed by Soil Genesis and Morphology Laboratory of the Mississippi Agricultural and Forestry Experiment Station.

Physical Analysis

The physical properties of soils, such as infiltration rate and conduction, shrink-swell potential, crusting, consistence, and available water capacity, are closely related to soil texture (the percentage of sand, silt, and clay).

Kipling soils formed in clayey parent material. These soils are fine textured and have a high content of expansive montmorillonitic clay. The clay content remains high to a depth of 50 inches or more. These clayey soils tend to shrink and swell upon drying and wetting. Providence and Pelahatchie soils have a high content of silt in the surface layer. These soils have a silty surface layer and have a tendency to pack and form a crust in intensively cultivated areas. This packing and crusting of the surface layer can adversely affect plant emergence.

Chemical Analyses

Soil chemical properties in combination with other soil features, such as permeability, structure, and texture, influence the limitations and potential of a soil. Chemical properties are not evident in visual observations of a soil, and laboratory analyses are necessary to define the characteristics of the soil. The amount and type of clay minerals present and the organic matter content largely regulate the chemical nature of soils. These substances have the capacity to attract and hold cations. Exchangeable cations are positive-charged elements that are bonded to clay minerals and organic matter that have a negative charge.

The exchangeable cations may be removed or exchanged through leaching or plant uptake. It is through this mechanism of cation exchange that soil acidity may be corrected by liming. It is useful to note that 1 milliequivalent per 100 grams of extractable acidity (hydrogen + aluminum) requires 1,000 pounds of calcium carbonate (lime) per acre to neutralize it.

Soil chemical data are expressed as milliequivalents (meq) per 100 grams of dry soil. It is useful to convert milliequivalents per 100 grams of the various cations to the common units of pounds per acre for the surface plow layer. The plow layer, or topsoil, of average soils to a depth of 6.67 inches weighs about 2 million pounds per acre. The conversions for the cations listed in table 20 are as follows:

Calcium (Ca) meq/100 grams x 400 — pounds per acre
Magnesium (Mg) meq/100 grams x 240 — pounds per acre
Potassium (K) meq/100 grams x 780 — pounds per acre
Sodium (Na) meq/100 grams x 460 — pounds per acre
Hydrogen (H) meq/100 grams x 20 — pounds per acre

The soils in Rankin County differ drastically in their capacity to retain plant nutrients (cations). Clayey soils, such as the Kipling soils, have a high exchange capacity. Loamy soils, such as Providence soils, have a low to moderate capacity to retain plant nutrients. Conditions are suitable for the growth of most plants when the cation exchange capacity of a soil is about 60 percent satisfied by calcium, 15 to 20 percent satisfied by magnesium, 5 percent satisfied by potassium, and not more than 20 percent satisfied by cations, such as sodium, hydrogen, and aluminum. The soil pH should be between 6 and 7 if the exchangeable cation composition is like this.

The soil taxonomy classification system used in the National Cooperative Soil Survey *(9)* uses chemical soil properties as differentiating criteria in some categories of the system. The Alfisol and Ultisol orders, which are classes in the highest category in the system, are separated on the basis of percentage base saturation deep in the subsoil. Ultisols have a base saturation of less than 35 percent in the lower part of the soil; in Alfisols, such values are greater than 35 percent. For example, Kipling soils have a base saturation level greater than 35 percent below a depth of 4 feet; they are Alfisols.

Determinations were made on soil materials smaller than 2 millimeters in diameter. Measurements of unit weight were calculated on an ovendry basis. The methods used in obtaining the data are indicated in the

list that follows. The codes in parentheses refer to published methods *(11)*.

The particle-size analyses were obtained using Day's hydrometer method *(7)*.

Extractable cations—ammonium acetate pH 7.0, uncorrected; calcium (6N2), magnesium (602), sodium (6P2), potassium (6Q2).

Extractable acidity—barium chloride-triethanolamine I (6H1a).

Cation-exchange capacity—sum of cations (5A3a).

Base saturation—sum of cations, TEA, pH 8.2 (5C3).

Reaction (pH)—1:1 water dilution (8C1a).

Organic carbon—dichromate, ferric sulfate titration (6A1a).

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories *(9)*. Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or on laboratory measurements. Table 21 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Ten soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Ultisol.

SUBORDER. Each order is divided into suborders, primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Udult (*Ud*, meaning humid, plus *ult*, from Ultisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Fragiudults (*Frag*, meaning brittle, plus *udult*, the suborder of the Ultisols that have a fragipan).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other known kind of soil. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Fragiudults.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Mostly the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineral content, temperature regime, depth of the root zone, consistence, moisture equivalent, slope, and permanent cracks. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine-loamy, siliceous, thermic, Typic Fragiudults.

SERIES. The series consists of soils that have similar horizons in their profile. The horizons are similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile. There can be some variation in the texture of the surface layer or of the substratum within a series. The Savannah series is an example of fine-loamy, siliceous, thermic Typic Fragiudults in Rankin County.

Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. The descriptions are arranged in alphabetic order.

Characteristics of the soil and the material in which it formed are identified for each series. The soil is compared with similar soils and with nearby soils of other series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the *Soil Survey Manual (8)*. Many of the technical terms used in the descriptions are defined in *Soil Taxonomy (9)*. Unless otherwise stated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series.

The map units of each soil series are described in the section "Detailed Soil Map Units."

Arkabutla Series

The Arkabutla series consists of deep, somewhat poorly drained soils that formed in silty sediment. These soils are on flood plains. The slopes range from 0 to 2 percent. The soils of the Arkabutla series are fine-silty, mixed, acid, thermic Aeric Fluvaquents.

Arkabutla soils are associated with Cahaba, Cascilla, Oaklimeter, and Urbo soils. Cahaba soils are on stream terraces and are well drained. These soils do not have chroma of 2 or less within a depth of 30 inches of the

surface. Cascilla soils are on flood plains, but they are well drained. These soils do not have chroma of 2 or less within a depth of 30 inches of the surface. Oaklimeter soils are on flood plains, but they are moderately well drained. These soils are coarse-silty in the 10- to 40-inch control section. Urbo soils are on flood plains and are somewhat poorly drained. These soils are fine in the 10- to 40-inch control section.

Typical pedon of Arkabutla silt loam, in an area of Cascilla-Arkabutla association, frequently flooded; in a wooded area, 2 miles south of Byram-Florence road, 1,200 feet east of Pearl River, 880 feet east of small gravel road, SE1/4NW1/4 sec. 31, T. 4 N., R. 1 E.

A1—0 to 3 inches; very dark grayish brown (10YR 3/2) silt loam; weak medium granular structure; friable; many fine and medium roots; common black stains; very strongly acid; clear smooth boundary.

A2—3 to 8 inches; dark brown (10YR 4/3) silt loam; common medium distinct grayish brown (10YR 5/2) mottles; weak medium subangular blocky structure; friable; common fine roots; very strongly acid; clear smooth boundary.

Bw—8 to 18 inches; mottled light brownish gray (10YR 6/2), yellowish brown (10YR 5/4), and dark yellowish brown (10YR 4/4) silt loam; weak medium subangular blocky structure; friable, slightly plastic; common fine roots; few fine black concretions; very strongly acid; gradual smooth boundary.

Bg1—18 to 34 inches; light brownish gray (10YR 6/2) silt loam; common fine and medium distinct yellowish brown (10YR 5/4) mottles; weak medium subangular blocky structure; friable, slightly plastic; few fine and medium black concretions; common fine and medium strong brown (7.5YR 5/8) stains; very strongly acid; gradual wavy boundary.

Bg2—34 to 61 inches; light brownish gray (10YR 6/2) silty clay loam; weak medium subangular blocky structure; firm, slightly plastic and sticky; few fine roots; common fine and medium strong brown (7.5YR 5/8) stains; very strongly acid.

The thickness of the solum is more than 40 inches. Reaction ranges from very strongly acid or strongly acid throughout except in areas where the surface layer has been limed.

The A1 horizon has hue of 10YR, value of 2 to 4, and chroma of 1 or 2. It is less than 4 inches thick. Some pedons have an A2 horizon that has hue of 10YR, value of 4 or 5, and chroma of 2 to 4. If present, mottles are few or common and are in shades of brown or gray.

The Bw horizon is mottled in shades of brown, yellow, and gray; or it has hue of 10YR, value of 4 or 5, and chroma of 3 to 6. Mottles of chroma of 2 or less range from few to many. The Bg horizon has hue of 10YR, value of 4 to 6, and chroma of 2 or less. Commonly, mottles are few to many and are in shades of brown. The B horizon is silt loam, loam, or silty clay loam. The 10- to 40-inch control section is 20 to 35 percent clay. The Bw horizon and the upper part of the Bg horizon have few to many black and brown concretions.

Cahaba Series

The Cahaba series consists of deep, well drained soils that formed in loamy and sandy alluvial deposits. These soils are on stream terraces. The slopes range from 0 to 2 percent. The soils of the Cahaba series are fine-loamy, siliceous, thermic Typic Hapludults.

Cahaba soils are associated with Arkabutla, Cascilla, and Tippo soils. Arkabutla soils are on flood plains and are somewhat poorly drained. These soils have a fine-silty control section. Cascilla soils are well drained, but they are on flood plains. These soils have a fine-silty control section. Tippo soils are on low stream terraces and flood plains and are somewhat poorly drained. These soils have a coarse-silty control section.

Typical pedon of Cahaba fine sandy loam, 0 to 2 percent slopes; in a field, 2.75 miles north of Sand Hill, 1,850 feet west of road, SE1/4NW1/4 sec. 14, T. 8 N., R. 4 E.

Ap—0 to 6 inches; dark yellowish brown (10YR 4/4) fine sandy loam; weak fine granular structure; very friable; many fine roots; medium acid; abrupt smooth boundary.

Bt1—6 to 15 inches; yellowish red (5YR 4/6) clay loam; moderate medium subangular blocky structure; friable; many fine roots; continuous clay films on faces of peds; very strongly acid; clear smooth boundary.

Bt2—15 to 21 inches; yellowish red (5YR 4/6) loam; moderate medium subangular blocky structure; friable; few fine roots; thin patchy clay films on faces of peds; very strongly acid; clear smooth boundary.

Bt3—21 to 41 inches; yellowish red (5YR 5/8) loam; weak medium subangular blocky structure; friable; few fine roots; thin patchy clay films on faces of peds; very strongly acid; clear smooth boundary.

C1—41 to 53 inches; yellowish brown (10YR 5/4) loamy sand; massive; very friable; strongly acid; abrupt smooth boundary.

C2—53 to 66 inches; light yellowish brown (10YR 6/4) loamy sand; massive; very friable; few fine roots; very strongly acid; abrupt smooth boundary.

C3—66 to 75 inches; brown (10YR 5/3) stratified loamy sand and sandy loam; massive; very friable; very strongly acid.

The thickness of the solum ranges from 36 to 60 inches. Reaction ranges from very strongly acid to medium acid except in areas where the surface layer has been limed.

The A horizon has hue of 10YR, value of 3 to 5, and chroma of 2 to 4.

The Bt horizon has hue of 5YR, value of 4 or 5, and chroma of 6 or 8. Texture is sandy clay loam, loam, or clay loam. The content of clay in this horizon is 18 to 35 percent, averaging about 25 percent in the control section. The content of silt is 20 to 50 percent. Some pedons have a BC or CB horizon that is strong brown, yellowish red, or red. Texture is sandy loam or fine sandy loam. In some pedons, this horizon is mottled in shades of yellow and brown.

The C horizon ranges from yellowish brown to red and is commonly interbedded or stratified with textures of sand, loamy sand, sandy loam, and fine sandy loam. Mottles, if present, are yellow, brown, and gray.

Cascilla Series

The Cascilla series consists of deep, well drained soils that formed in silty alluvium. These soils are on flood plains. The slopes range from 0 to 2 percent. The soils of the Cascilla series are fine-silty, mixed, thermic Fluventic Dystrochrepts.

Cascilla soils are associated with Arkabutla, Cahaba, and Oaklimeter soils. Arkabutla soils are on flood plains, but they are somewhat poorly drained. These soils have mottles in shades of gray in the upper part of the subsoil. Cahaba soils are well drained, but they are on stream terraces. These soils have a fine-loamy control section. Oaklimeter soils are on flood plains, but they are moderately well drained. These soils have a coarse-silty control section.

Typical pedon of Cascilla silt loam, in an area of Cascilla-Arkabutla association, frequently flooded; in a wooded area 2 miles south of Byram-Florence road, 900 feet east of Pearl River, 580 feet east of small narrow road, SE1/4NW1/4 sec. 31, T. 4 N., R. 1 E.

A1—0 to 2 inches; very dark grayish brown (10YR 3/2) silt loam; weak medium granular structure; friable; many fine and medium roots; strongly acid; clear smooth boundary.

A2—2 to 6 inches; dark grayish brown (10YR 4/2) silt loam; weak medium subangular blocky structure parting to weak coarse granular structure; friable; many fine and medium roots; very strongly acid; clear smooth boundary.

Bw1—6 to 18 inches; dark brown (10YR 4/3) silt loam; weak medium subangular blocky structure; friable; common fine roots; very strongly acid; gradual smooth boundary.

Bw2—18 to 37 inches; yellowish brown (10YR 5/4) silt loam; weak medium subangular blocky structure; friable; few fine roots; few strong brown (7.5YR 5/8) stains around root channels; very strongly acid; gradual smooth boundary.

BC—37 to 50 inches; yellowish brown (10YR 5/4) silt loam; weak medium subangular blocky structure; friable; few fine roots; very strongly acid; gradual smooth boundary.

2C—50 to 70 inches; yellowish brown (10YR 5/6) fine sandy loam; massive; very friable; very strongly acid.

The thickness of the solum ranges from 45 to 80 inches. Reaction is very strongly acid or strongly acid throughout except in areas where the surface layer has been limed.

The A horizon has hue of 10YR, value of 3 or 4, and chroma of 2 to 4.

The Bw horizon has hue of 10YR, value of 3 to 5, and chroma of 3; or hue of 7.5YR, value of 4 or 5, and chroma of 4. Some pedons have few or common mottles in shades of gray at a depth of more than 24 inches of the surface. Texture is silt loam or silty clay loam. The content of clay in the Bw horizon ranges from 30 percent.

The BC horizon has hue of 10YR, value of 4 or 5, chroma of 4 to 6. Some pedons have mottles in shades of gray.

The 2C horizon has hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 2 to 6 or is mottled in shades of brown and gray. Texture is fine sandy loam, loam, or silt loam.

Falkner Series

The Falkner series consists of deep, somewhat poorly drained soils that formed in a silty mantle and the underlying acid, clayey deposits. These soils are on uplands and stream terraces. The slopes range from 2 to 8 percent. The soils of the Falkner series are fine-silty, siliceous, thermic Aquic Paleudalfs.

Falkner soils are associated with Kipling, Pelahatchie, and Tippah soils. Kipling soils are on uplands and are somewhat poorly drained. These soils have a fine control section. Pelahatchie soils are on uplands, but they are moderately well drained. These soils have a nonacid, clay 2C horizon. Tippah soils are on uplands, but they are moderately well drained. These soils have a Bt horizon that has hue of 7.5YR or has hue that is more red than 7.5YR.

Typical pedon of Falkner silt loam, 2 to 5 percent slopes; in a field, 0.5 mile northwest of West Leesburg, south of Oak Grove Church, NW1/4SW1/4 sec. 17, T. 7 N., R. 5 E.

Ap—0 to 8 inches; yellowish brown (10YR 5/4) silt loam; weak fine granular structure; friable; many fine roots; strongly acid; clear smooth boundary.

Bt1—8 to 12 inches; yellowish brown (10YR 5/6, 5/4) silty clay loam; few fine distinct light brownish gray (10YR 6/2) mottles; moderate medium subangular blocky structure; friable; few fine roots; discontinuous clay films on faces of peds; very strongly acid; gradual wavy boundary.

Bt2—12 to 26 inches; mottled yellowish brown (10YR 5/6, 5/4) and light brownish gray (10YR 6/2) silty clay loam; moderate medium subangular blocky

structure; friable; few fine roots; discontinuous clay films on faces of peds; very strongly acid; gradual wavy boundary.

2Bt3—26 to 49 inches; mottled yellowish brown (10YR 5/6, 5/4) and light brownish gray (10YR 6/2) silty clay; moderate medium subangular and angular blocky structure; firm, plastic; few fine roots; discontinuous clay films on faces of peds; very strongly acid; gradual wavy boundary.

2Bt4—49 to 57 inches; yellowish brown (10YR 5/4) silty clay; common medium distinct light brownish gray (10YR 6/2) mottles; strong medium subangular and angular blocky structure; firm, plastic; discontinuous clay films on faces of peds; few small stress surfaces on faces of peds; very strongly acid; gradual wavy boundary.

2Bt5—57 to 65 inches; mottled yellowish brown (10YR 5/6, 5/4), light brownish gray (10YR 6/2), gray (10YR 5/1), and brownish yellow (10YR 6/8) silty clay; strong medium subangular and angular blocky structure; firm, plastic; discontinuous clay films on faces of peds; few small stress surfaces on faces of peds; very strongly acid.

The thickness of the solum is more than 60 inches. The upper part of the solum, which is 15 to 35 inches thick, is silty and is underlain by a clayey layer. Reaction ranges from very strongly acid to medium acid in the A and Bt horizons except in areas where the surface layer has been limed. Reaction ranges from very strongly acid to slightly acid in the 2Bt horizon.

The Ap or A horizon has a hue of 10YR, value of 3 to 6, and chroma of 1 to 4.

Some pedons have a thin E horizon that has hue of 10YR, value of 5 or 6, and chroma of 2 to 4.

The Bt1 horizon has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 3 to 6. In some pedons, this horizon has few gray mottles. Texture is silt loam or silty clay loam. The Bt2 horizon has a matrix of 10YR or 2.5Y hue, value of 5 or 6, and chroma of 3 to 6. This horizon has few to many grayish mottles or is mottled in shades of gray, red, brown, or yellow. Texture is silt loam or silty clay loam. The content of clay in the control section, the upper 20 inches of the B horizon, ranges from 20 to 35 percent. The 2Bt horizon has a matrix of 2.5YR, 5YR, 10YR, or 2.5Y hue, value of 4 to 6, and chroma of 1 to 6. This horizon has few to many, fine to coarse mottles in shades of yellow, brown, gray, or red or is mottled in shades of gray, brown, red, or yellow. Texture is silty clay loam, silty clay, or clay. Some pedons have soft, shale bedrock at a depth of more than 60 inches.

Gillsburg Series

The Gillsburg series consists of deep, somewhat poorly drained soils that formed in silty alluvium. These soils are on flood plains. The slopes range from 0 to 2 percent. The soils of the Gillsburg series are coarse-silty, mixed, acid, thermic Aeric Fluvaquents.

Gillsburg soils are associated with Kirkville, Oaklimeter, and Urbo soils. Kirkville soils are on flood plains, but they are moderately well drained. These soils have a coarse-loamy control section. Oaklimeter soils are on flood plains, but they are moderately well drained. These soils do not have a gray matrix within a depth of 20 inches of the surface. Urbo soils are on flood plains and are somewhat poorly drained. These soils have a fine control section.

Typical pedon of Gillsburg silt loam, occasionally flooded; in a field, 0.5 mile northeast of Whitfield, 320 feet northwest of large water oak tree, SE1/4NE1/4 sec. 26, T. 5 N., R. 2 E.

Ap—0 to 7 inches; brown (10YR 5/3) silt loam; weak coarse granular structure; friable; many fine roots; slightly acid; clear smooth boundary.

Bw1—7 to 11 inches; brown (10YR 4/3) silt loam; weak medium subangular blocky structure; slightly firm; common fine roots; common fine pores; brown and black concretions; strongly acid; clear smooth boundary.

Bw2—11 to 17 inches; mottled yellowish brown (10YR 5/4), brownish yellow (10YR 6/6), and light brownish gray (10YR 6/2) silt loam; weak medium subangular blocky structure; friable; few fine roots; many fine pores; few fine and medium black and brown concretions; very strongly acid; gradual wavy boundary.

Egb—17 to 38 inches; light brownish gray (10YR 6/2) silt loam; common medium distinct yellowish brown (10YR 5/4) mottles; weak medium subangular blocky structure; friable; few fine roots; few fine pores; many fine and medium black and brown concretions; very strongly acid; gradual wavy boundary.

E/B—38 to 43 inches; light brownish gray (2.5Y 6/2) silt loam tongues (E); yellowish brown (10YR 5/6) silty clay loam ped interiors (B); weak coarse prismatic parting to weak medium subangular blocky structure; friable, slightly brittle; clay films on some faces of ped; few fine pores; few thin gray silt coatings between prisms; common fine and medium black concretions; very strongly acid; gradual wavy boundary.

Btgb—43 to 65 inches; mottled light brownish gray (10YR 6/2) and yellowish brown (10YR 5/6, 5/8) silty clay loam; weak coarse prismatic structure parting to weak medium subangular blocky structure; firm, slightly brittle; patchy clay films on faces of prism; few thin tongues of gray silty material between prisms; common fine and medium roots; very strongly acid.

Depth to the buried horizon commonly ranges from 20 to 50 inches; in a few pedons the buried horizon may be deeper than 50 inches or absent. Reaction is very strongly acid or strongly acid throughout except in areas where the surface layer has been limed. The 10- to 40-inch particle-size control section is 6 to 18 percent clay.

The A horizon has hue of 10YR, value of 4 or 5, and chroma of 2 or 3.

The Bw horizon has hue of 10YR, value of 4 or 5, and chroma of 3 or 4. This horizon is commonly mottled in shades of brown and gray. If present, brown and black concretions are few or common. The Bg horizon has hue of 10YR, value of 5 to 7, and chroma of 1 or 2 or is mottled in shades of gray, yellow, or brown. Brown and black concretions are few to many.

The buried soil horizon has hue of 10YR, value of 5 to 7, and chroma of 1 or 2 or is mottled in shades of gray, yellow, or brown. In addition, this horizon has few to many tongues of gray silty material between prism faces. Texture is silt loam or silty clay loam. Fine to coarse, black and brown concretions are few to many.

Guyton Series

The Guyton series consists of deep, poorly drained soils that formed in silty alluvium. These soils are on low stream terraces and flood plains. The slopes range from 0 to 1 percent. The soils of the Guyton series are fine-silty, siliceous, thermic Typic Glossaqualfs.

Guyton soils are associated with Leverett and Tippo soils. Leverett soils are on low stream terraces, but they are well drained. Tippo soils are on low stream terraces and flood plains, but they are somewhat poorly drained. These soils have a coarse-silty control section.

Typical pedon of Guyton silt loam, occasionally flooded; in a wooded area, 1,700 feet southwest of a drive-in movie, 75 feet west of paved road, 1,300 feet north of Mississsippi State Highway 25, in Luckney Community, SE1/4SW1/4 sec. 23, T. 6 N., R. 2 E.

A—0 to 1 inch; grayish brown (10YR 5/2) silt loam; weak medium granular structure; friable; many fine and medium roots; very strongly acid; clear smooth boundary.

Eg1—1 to 12 inches; light brownish gray (2.5Y 6/2) silt loam; common fine and medium distinct light yellowish brown (10YR 6/4) mottles; weak medium subangular blocky structure; friable; few fine roots; few fine distinct brown (7.5YR 5/4) stains; common fine pores; very strongly acid; gradual wavy boundary.

Eg2—12 to 21 inches; light brownish gray (10YR 6/2) silt loam; common fine and medium distinct yellowish brown (10YR 5/8) mottles; weak medium subangular blocky structure; friable; common fine and medium roots; many fine pores; common yellowish red (5YR 4/6) stains on surfaces of peds; very strongly acid; clear irregular boundary.

Btg/E—21 to 29 inches; light brownish gray (2.5Y 6/2) silt loam (B); many fine and medium yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky structure; friable; common fine and medium roots; common fine pores; about 20 percent, by volume, vertical tongues (E) of light gray (10YR 7/2) silt; very strongly acid; gradual irregular boundary.

Btg1—29 to 44 inches; light brownish gray (2.5Y 6/2) silty clay loam; many medium distinct light yellowish brown (10YR 6/4) mottles; moderate medium subangular blocky structure; firm; few fine roots; patchy clay films on faces of peds; light gray (10YR 7/2) silt coatings along vertical surfaces of peds; very strongly acid; gradual wavy boundary.

Btg2—44 to 65 inches; light brownish gray (2.5Y 6/2) silty clay loam; many medium distinct yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky structure; friable; common fine roots; few patchy clay films on faces of peds; light gray (10YR 7/2) silt coatings along vertical surfaces of peds; strongly acid.

The thickness of the solum ranges from 50 to 80 inches. Exchangeable sodium in the lower part of the solum ranges from 10 to 40 percent. Reaction ranges from extremely acid to strongly acid in the A horizon and upper part of the B horizon except in areas where the surface layer has been limed and ranges from strongly acid to neutral in the lower part of the B horizon.

The A horizon has hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 2 or 3.

The E horizon has hue of 10YR or 2.5Y, value of 5 to 8, and chroma of 1 or 2. Mottles in shades of brown range from few to many. Texture is silt loam, loam, or very fine sandy loam. The lower boundary of the E horizon is clear irregular or abrupt irregular. Tongues extend from the E horizon into the Bt horizon.

The Bt horizon has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 1 or 2. Few to many mottles are in shades of brown or gray. Texture is silt loam, silty clay loam, or clay loam.

Some pedons have BC and C horizons that have hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 1 or 2. Texture is silt loam, silty clay loam, clay loam, or sandy clay loam.

Kipling Series

The Kipling series consists of deep, somewhat poorly drained soils that formed in clayey material. These soils are on uplands. The slopes range from 0 to 8 percent. The soils of the Kipling series are fine, montmorillonitic, thermic Vertic Hapludalfs.

Kipling soils are associated with Falkner, Pelahatchie, and Tippah soils, all of which have fine-silty control sections. Falkner soils are on uplands and stream terraces and are somewhat poorly drained. Pelahatchie

and Tippah soils are on uplands, but they are moderately well drained.

Typical pedon of Kipling silt loam, 2 to 5 percent slopes; in a wooded area, about 2.75 miles south of Mississippi State Highway 25, along Mississippi State Highway 475, 300 feet east, SW1/4SE1/4 sec. 3, T. 5 N., R. 2 E.

Ap—0 to 6 inches; grayish brown (10YR 5/2) silt loam; moderate medium granular structure; friable; many fine roots; very strongly acid; clear smooth boundary.

E—6 to 12 inches; pale brown (10YR 6/3) silt loam; weak medium subangular blocky structure; friable; common fine and medium roots; very strongly acid; clear wavy boundary.

Bt1—12 to 26 inches; mottled yellowish brown (10YR 5/6), light yellowish brown (10YR 6/4), red (2.5YR 5/6), and light brownish gray (10YR 6/2) silty clay; moderate medium subangular blocky structure; firm; many fine roots; clay films on faces of peds; very strongly acid; clear smooth boundary.

Bt2—26 to 41 inches; yellowish brown (10YR 5/6) silty clay; common medium and fine distinct yellowish red (5YR 5/6) and light brownish gray (10YR 6/2) mottles; moderate medium subangular blocky structure; very firm; many fine roots; clay films on faces of peds; very strongly acid; gradual wavy boundary.

BC—41 to 52 inches; light olive brown (2.5Y 5/6) silty clay; common medium distinct light brownish gray (10YR 6/2) mottles; moderate fine and medium subangular blocky structure; few nonintersecting slickensides; very firm, plastic; few fine roots; very strongly acid; gradual wavy boundary.

C—52 to 65 inches; mottled dark grayish brown (2.5Y 4/2), olive brown (2.5Y 4/4), and olive yellow (2.5Y 6/6) silty clay; intersecting slickensides form wedge-shaped aggregates that part to angular blocky fragments; very firm, plastic; few fine roots; few lime nodules; few fine manganese concretions; medium acid.

The thickness of the solum ranges from 25 to 55 inches. The Bt horizon is irregularly underlain by marly clay at a depth that varies from 36 to about 80 inches or more. Reaction in the A, E, and Bt horizons ranges from very strongly acid to medium acid except in areas where the surface layer has been limed. In the BC horizon, reaction ranges from very strongly acid to moderately alkaline; and in the C horizon, it ranges from strongly acid to moderately alkaline.

The A horizon has hue of 10YR, value of 3 to 5, and chroma of 1 to 4.

Some pedons have an E horizon that has hue of 10YR, value of 5 or 6, and chroma of 2 or 3; or hue of 2.5Y, value of 5 or 6, and chroma of 2. Texture is silt loam, loam, or fine sandy loam.

The Bt horizon has hue of 2.5YR, 5YR, 7.5YR, 10YR, or 2.5Y, value of 4 or 5, and chroma of 4 to 8. This horizon has few to many mottles of chroma of 2 or less or is mottled in shades of yellow, brown, gray, and red. In some pedons, the lower part of the Bt horizon has hue of 10YR, 2.5Y or 5Y, value of 5 to 7 and chroma of 1 or 2 and has mottles in shades of brown and yellow. Texture is silty clay loam, silty clay, or clay. The content of clay in the particle-size control section, the upper 20 inches of the Bt horizon, ranges from 35 to 60 percent and commonly is 45 to 55 percent.

The C horizon typically is mottled in shades of yellow, red, brown, and gray or has a matrix of 10YR, 2.5Y, or 5Y hue, value of 5 to 7, and chroma of 1 to 4. Mottles are few to many in shades of gray, brown, and yellow. Texture is silty clay or clay. Manganese concretions in the C horizon are few to many, and lime concretions, if present, are few to many.

Kirkville Series

The Kirkville series consists of deep, moderately well drained soils that formed in loamy alluvial material. These soils are on flood plains. The slopes are 0 to 2 percent. The soils of the Kirkville series are coarse-loamy, siliceous, thermic Fluvaquentic Dystrochrepts.

Kirkville soils are associated with Gillsburg, Oaklimeter, and Urbo soils. These associated soils are on flood plains. Gillsburg soils are somewhat poorly drained. They have a coarse-silty control section. Oaklimeter soils are moderately well drained. They have a coarse-silty control section. Urbo soils are somewhat poorly drained. They have a fine control section.

Typical profile of Kirkville fine sandy loam, occasionally flooded; in a bermudagrass pasture, 4.5 miles east of Brandon along U.S. Highway 80, 1.25 miles southeast along paved county road, 230 feet north of pavement, about 1,700 feet southeast of U.S. Interstate Highway 20, SE1/4NW1/4 sec. 16, T. 5 N., R. 4 E.

Ap—0 to 5 inches; brown (10YR 5/3) fine sandy loam; weak fine granular structure; friable; many fine and medium roots; few dark stains; slightly acid; clear smooth boundary.

Bw1—5 to 22 inches; brown (10YR 4/3) loam; common fine faint pale brown (10YR 6/3) and dark yellowish brown (10YR 4/4) mottles; weak medium subangular blocky structure; friable; common fine roots; common fine brown concretions; common fine pores; strongly acid; gradual smooth boundary.

Bw2—22 to 47 inches; mottled yellowish brown (10YR 5/4), light yellowish brown (10YR 6/4), light brownish gray (10YR 6/2), and dark yellowish brown (10YR 4/4) loam; weak medium subangular blocky structure; friable; few fine roots; few fine brown concretions; very strongly acid; gradual smooth boundary.

Bg1—47 to 65 inches; light brownish gray (10YR 6/2) loam; common fine faint pale brown (10YR 6/3) and common medium distinct yellowish brown (10YR 5/4) mottles; weak medium subangular blocky structure; friable; few fine roots; common yellowish red (5YR 5/8) stains; very strongly acid; gradual smooth boundary.

Bg2—65 to 71 inches; light brownish gray (10YR 6/2) loam; distinct yellowish brown (10YR 5/4) and strong brown (7.5YR 5/8) mottles; weak medium subangular blocky structure; friable; few fine roots; many fine and medium black and brown concretions and stains; very strongly acid.

The thickness of the solum ranges from 30 to more than 60 inches. Reaction is very strongly acid or strongly acid throughout except in areas where the surface layer has been limed.

The A horizon has hue of 10YR, value of 4 or 5, and chroma of 2 to 4.

The Bw1 horizon has hue of 10YR, value of 4 or 5, and chroma of 3 to 6. The Bw2 horizon is mottled in shades of brown and gray or has a matrix of 10YR hue, value of 4 or 5, and chroma of 3 to 6. Mottles of chroma of 2 or less range from few to many. The Bg horizon has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 2 or less. Mottles are few to many in shades of brown and yellow. The B horizon is loam, sandy loam, or fine sandy loam. The content of clay in this horizon ranges from 10 to 18 percent. Few to many brown, red, or black concretions are in the lower part of the B horizon.

Some pedons have a C horizon that has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 2 or less. This horizon has few to many mottles in shades of gray or brown or is mottled in shades of brown and gray. Texture is fine sandy loam, sandy loam, or loam.

Kisatchie Series

The Kisatchie series consists of moderately deep, well drained soils that formed in acid, clayey sediment and the underlying siltstone or sandstone. These soils are on dissected uplands. The slopes range from 10 to 40 percent. The soils of the Kisatchie series are fine, montmorillonitic, thermic Typic Hapludalfs.

The Kisatchie soils are associated with Providence, Smithdale, and Tippan soils. Providence soils are on uplands and stream terraces, but they are moderately well drained. These soils have a fine-silty control section. Providence soils have a fragipan. Smithdale soils are on uplands and are well drained. These soils have a fine-loamy control section, and the solum is more than 60 inches thick. Tippah soils are on uplands, but are moderately well drained. These soils have a fine-silty control section, and the solum is more than 60 inches thick.

Typical pedon of Kisatchie fine sandy loam; in an area of Smithdale-Providence-Kisatchie association, hilly; in a wooded area 4.5 miles southeast of Brandon along Shiloh Road, 500 feet south of pavement, NE1/4NW1/4 sec. 33, T. 5 N., R. 4 E.

A—0 to 2 inches; dark grayish brown (10YR 4/2) fine sandy loam; weak fine granular structure; very friable; many fine and medium roots; very strongly acid; clear smooth boundary.

E—2 to 11 inches; grayish brown (10YR 5/2) fine sandy loam; weak coarse granular structure; friable; common fine and medium roots; very strongly acid; clear smooth boundary.

Bt1—11 to 19 inches; pale olive (5Y 6/3) clay loam; common medium distinct brownish yellow (10YR 6/6) mottles; moderate medium subangular blocky structure; firm, plastic and sticky; common fine roots; continuous clay films on faces of peds; very strongly acid; gradual wavy boundary.

Bt2—19 to 23 inches; pale olive (5Y 6/3) channery clay loam; common medium distinct brownish yellow (10YR 6/6) and light yellowish brown (10YR 6/4) mottles; weak medium subangular blocky structure; firm; few fine roots; patchy clay films on faces of peds; 30 percent light brownish gray (2.5Y 6/2) siltstone fragments 1/2 to 1 centimeter thick and 2 to 3 centimeters long, horizontally oriented; very strongly acid; clear smooth boundary.

Cr—23 to 40 inches; light yellowish brown (2.5Y 6/4) and light brownish gray (10YR 6/2) soft siltstone; clay flows in vertical cracks, yellow (10YR 7/8) stains along planes; extremely acid.

The thickness of the solum ranges from 20 to 40 inches. The solum is underlain by siltstone or sandstone. Reaction is very strongly acid or strongly acid in the A and E horizons and extremely acid or very strongly acid in the Bt and Cr horizons.

The A horizon has hue of 10YR, value of 3 or 4, and chroma of 1 or 2.

The E horizon has hue of 10YR, value of 4 to 6, and chroma of 1 or 2. Texture is fine sandy loam or very fine sandy loam.

The Bt horizon has hue of 5Y to 10YR, value of 5 or 6, and chroma of 2 to 6. Mottles are few to common in shades of brown. Texture is silty clay, silty clay loam, clay loam, or the channery analogs of these textures. The content of clay in the upper 20 inches of the B horizon ranges from 35 to 55 percent. The lower part of the Bt horizon has 15 to 30 percent siltstone or sandstone fragments, by volume.

The Cr horizon is weathered sandstone or siltstone.

Leverett Series

The Leverett series consists of deep, well drained soils that formed in silty material. These soils are on low stream terraces. The slopes range from 0 to 2 percent.

The soils of the Leverett series are coarse-silty, mixed, thermic Haplic Glossudalfs.

Leverett soils are associated with Guyton and Tippo soils. Guyton soils are on low stream terraces and flood plains. These soils are poorly drained and have a dominantly gray subsoil. Tippo soils are on low stream terraces and flood plains but are somewhat poorly drained. These soils have mottles of chroma of 2 or less within a depth of 16 inches of the surface.

Typical pedon of Leverett silt loam, 0 to 2 percent slopes; in a soybean field, about 2 miles south of U.S. Highway 80 along Pearson Road, and 2,500 feet west of pavement, or 1,600 feet south of railroad tracks. NW1/4SW1/4 sec. 30, T. 5 N., R. 2 E.

Ap—0 to 6 inches; yellowish brown (10YR 5/6) silt loam; moderate medium granular structure; very friable; common fine roots; strongly acid; clear smooth boundary.

Bt1—6 to 18 inches; strong brown (7.5YR 5/6) silt loam; weak medium subangular blocky structure; friable; common fine roots; thin patchy clay films on faces of peds; yellowish brown coatings in worm casts; very strongly acid; gradual wavy boundary.

Bt2—18 to 37 inches; strong brown (7.5YR 5/6) silt loam; common fine and medium distinct yellowish brown (10YR 5/4, 5/6) and dark yellowish brown (10YR 4/4) mottles; weak coarse prismatic structure parting to weak medium subangular blocky structure; slightly firm and brittle; few fine roots; few patchy clay films on faces of peds; common fine pores and vesicles; few fine black and brown concretions; very strongly acid; gradual irregular boundary.

B/E—37 to 48 inches; yellowish brown (10YR 5/4) silt loam (B); many coarse distinct pale brown (B) (10YR 6/3) and light brownish gray (10YR 6/2) mottles; about 25 percent, by volume, tongues (E) of pale brown and light brownish gray silt 1 inch to 2 inches wide at intervals of 3 to 4 inches; weak medium prismatic structure parting to moderate medium subangular blocky structure; slightly firm and brittle; few fine roots; few patchy clay films on faces of peds; many fine vesicles; many fine and medium black and brown concretions; strongly acid; gradual irregular boundary.

Btcb1—48 to 53 inches; yellowish brown (10YR 5/6) silt loam; common medium faint dark yellowish brown (10YR 4/4) and common medium distinct light brownish gray (10YR 6/2) mottles; weak medium prismatic structure parting to moderate medium subangular blocky structure; slightly brittle; few patchy clay films on faces of peds; gray silt coatings on vertical faces of peds; many fine and medium black and brown concretions; strongly acid; gradual wavy boundary.

Btcb2—53 to 65 inches; mottled light brownish gray (10YR 6/2), strong brown (7.5YR 5/6), brown (7.5YR 5/4), and light gray (10YR 7/2) silt loam; moderate medium subangular blocky structure; friable; few patchy clay films on faces of peds; many fine to coarse black and brown concretions; strongly acid.

The thickness of the solum is more than 60 inches. Reaction ranges from very strongly acid to medium acid except in areas where the surface layer has been limed.

The A horizon has hue of 10YR, value of 4 or 5, and chroma of 2 to 6.

The upper part of the Bt horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3 to 6. The upper 20 inches of the Bt horizon, the particle-size control section, is less than 15 percent sand that is coarser than very fine sand and 8 to 15 percent clay. The lower part also has hue of 7.5YR or 10YR, value of 4, and chroma of 3 to 6 except in some pedons are mottles of chroma of 2 or less, or the lower part of the horizon is mottled in shades of brown and gray. The B part of the B/E horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3 to 6. Mottles of chroma of 2 or less are few to many. The E part has about 15 to 40 percent, by volume, gray silt tongues that have hue of 10YR, value of 5 or 6, and chroma of 2.

The upper part of the Btc horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3 to 6. It commonly has gray silt coatings on vertical faces of peds. Mottles, if present, are in shades of brown or gray and range from few to many. The lower part is mottled in shades of brown and gray or has colors similar to those in the upper part of the horizon.

Maben Series

The Maben series consists of deep, well drained soils that formed in stratified loamy material and shaly clay. These soils are on uplands. The slopes range from 5 to 35 percent. The soils of the Maben series are fine, mixed, thermic Ultic Hapludalfs.

Maben soils are associated with Smithdale and Tippah soils. Smithdale soils are on uplands and are well drained. These soils have a fine-loamy control section. Tippah soils are on uplands, but they are moderately well drained. These soils have a fine-silty control section.

Typical pedon of Maben fine sandy loam, in an area of Maben-Smithdale association, hilly; in a cutover loblolly pine stand, 1.5 miles east of Pelahatchie on U.S. Highway 80, 3.5 miles south on county road, 0.5 mile east on gravel road, 1,800 feet south of gravel road, SE1/4SW1/4 sec. 13, T. 5 N., R. 5 E.

Ap—0 to 6 inches; brown (10YR 5/3) fine sandy loam; weak fine granular structure; friable; many fine and medium roots; strongly acid; clear smooth boundary.

E—6 to 11 inches; mottled pale brown (10YR 6/3), yellowish brown (10YR 5/4), and brown (10YR 5/3)

fine sandy loam; weak medium subangular blocky structure; friable; few fine black concretions; many fine and medium roots; very strongly acid; clear smooth boundary.

Bt1—11 to 28 inches; yellowish red (5YR 5/8) silty clay; moderate medium subangular blocky structure; firm; common fine roots; continuous clay films; common fine pores; very strongly acid; gradual smooth boundary.

Bt2—28 to 42 inches; yellowish red (5YR 5/8) silty clay; common medium faint red (2.5YR 4/6) mottles; moderate medium subangular blocky structure in the lower part; firm; few fine roots; few fine black stains; few thin gray clay strata; continuous clay films; many fine pores; thin shale fragments; very strongly acid; gradual smooth boundary.

C1—42 to 59 inches; mottled yellowish red (5YR 4/6), red (2.5YR 4/6), strong brown (7.5YR 5/6), and light brownish gray (10YR 6/2) thinly bedded clays, very fine sand, and loamy material; clay of moderate thick platy structure; sandy and loamy material, structureless, weak and thinly plated; friable; few medium roots between strata; few very thin partings of limonite fragments; some bedding planes; very strongly acid; gradual wavy boundary.

C2—59 to 80 inches; mottled brown (7.5YR 5/4), light brownish gray (10YR 6/2), (2.5Y 6/2), and strong brown (7.5YR 5/8) thinly bedded claystone or shale and very fine sand and loamy material; common limonite stains and thin partings of limonite along some bedding planes; few fine roots; very strongly acid.

The thickness of the solum ranges from 20 to 48 inches.

The A or Ap horizon has hue of 10YR or 7.5YR, value of 3 to 5, and chroma of 3 or 4. Reaction is strongly acid to slightly acid except in areas where the surface layer has been limed. Some pedons have an E horizon that has hue of 10YR, value of 4 to 6, and chroma of 2 to 4 or is mottled in shades of brown. Texture is fine sandy loam, sandy loam, loam, or silt loam.

The Bt horizon has hue of 2.5YR or 5YR, value of 3 to 5, and chroma of 4 to 8. Mottles, if present, are in shades of brown and yellow and range from few to common. Texture is clay, silty clay, silty clay loam, or clay loam. The particle-size control section, the upper 20 inches of the horizon, ranges from 35 to 55 percent clay. Reaction is very strongly acid to medium acid.

The C horizon is mottled in shades of red, gray, or yellow. The horizon is stratified fine sandy loam and partially weathered shale fragments, siltstone, or claystone. Reaction is very strongly acid to medium acid.

Oaklimeter Series

The Oaklimeter series consists of deep, moderately well drained soils that formed in silty alluvial sediment. These soils are on flood plains. The slopes range from 0 to 2 percent. The soils of the Oaklimeter series are coarse-silty, mixed, thermic Fluvaquentic Dystrochrepts.

Oaklimeter soils are associated with Arkabutla, Cascilla, Gillsburg, and Kirkville soils. These associated soils are on flood plains. Arkabutla soils are somewhat poorly drained. They have a fine-silty control section. Cascilla soils are well drained. They have a fine-silty control section. Gillsburg soils are somewhat poorly drained. They have a gray matrix within a depth of 20 inches of the surface. Kirkville soils are moderately well drained. They have a coarse-loamy control section.

Typical pedon of Oaklimeter silt loam, occasionally flooded; in a field, 1 mile northeast of Whitfield on Terrapin Skin Creek flood plain, 1,000 feet south of pipeline, 200 feet west of paved road, SW1/4SW1/4 sec. 24, T. 5 N., R. 2 E.

Ap—0 to 9 inches; dark yellowish brown (10YR 4/4) silt loam; weak fine granular structure; very friable; common fine roots; common fine black concretions; very strongly acid; clear smooth boundary.

Bw1—9 to 19 inches; mottled dark yellowish brown (10YR 4/4), yellowish brown (10YR 5/4), and brown (10YR 5/3) silt loam; weak medium subangular blocky structure; friable; common fine roots; common fine brown concretions; very strongly acid; gradual wavy boundary.

Bw2—19 to 30 inches; mottled dark yellowish brown (10YR 4/4), light yellowish brown (10YR 6/4), and light brownish gray (10YR 6/2) silt loam; weak medium subangular blocky structure; friable; common fine roots; common fine and medium brown and black concretions; very strongly acid; gradual wavy boundary.

B/E—30 to 46 inches; mottled yellowish brown (10YR 5/4), light yellowish brown (10YR 6/4), and brown (10YR 5/3) silt loam; weak coarse prismatic structure parting to weak medium subangular blocky structure; friable, slightly firm in brown part; few patchy clay films; common fine roots; common fine and medium brown and black concretions; light brownish gray (10YR 6/2) silt seams and coatings between prisms; very strongly acid; clear wavy boundary.

Btgb1—46 to 50 inches; light brownish gray (10YR 6/2) silt loam; common fine distinct yellowish brown (10YR 5/4, 5/8) mottles; weak coarse prismatic structure parting to weak medium subangular blocky structure; friable; few fine roots; many fine and medium black concretions; very strongly acid; gradual smooth boundary.

Btgb2—50 to 65 inches; mottled light brownish gray (10YR 6/2), dark yellowish brown (10YR 4/4), and brown (10YR 5/3) silt loam; weak coarse prismatic structure parting to weak medium subangular blocky

structure; friable; common medium black concretions; very strongly acid.

The thickness of the solum ranges from 60 to more than 80 inches. Depth to the buried solum ranges from 20 to 40 inches. Reaction is very strongly acid or strongly acid throughout except in areas where the surface layer has been limed.

The A horizon has hue of 10YR, value of 4 or 5, and chroma of 2 to 4.

The Bw1 horizon has hue of 10YR, value of 4 or 5, and chroma of 3 or 4. Grayish or brownish mottles, if present, are few or common. Texture is very fine sandy loam, silt loam, or loam. The Bw2 horizon has a matrix of 10YR hue, value of 4 or 5, and chroma of 3 or 4. Mottles, if present, are in shades of brown and gray. Brownish mottles are few or common, and grayish mottles are few to many. In some pedons, the Bw2 horizon is mottled in shades of brown and gray. Texture is silt loam, loam, or very fine sandy loam. The content of clay in the 10- to 40-inch control section is 7 to 18 percent.

The B/E and Btgb horizons have hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 1 or 2 or are mottled in shades of brown and gray. Texture is silt loam or silty clay loam. Black and brown stains and soft bodies, if present, range from few to many.

Ora Series

The Ora series consists of deep, moderately well drained soils that formed in loamy marine deposits. These soils are on uplands. They have a fragipan. The slopes range from 5 to 12 percent. The soils of the Ora series are fine-loamy, siliceous, thermic Typic Fragiudults.

Ora soils are associated with Providence, Savannah, and Smithdale soils. Providence and Savannah soils are on uplands and stream terraces, are moderately well drained, and have a fragipan. Providence soils have a fine-silty control section. Savannah soils have a Bt horizon that has hue of 7.5YR or has hue that is more yellow than 7.5YR. Smithdale soils are on uplands, but they are well drained. These soils do not have a fragipan.

Typical pedon of Ora fine sandy loam, 5 to 8 percent slopes, eroded; in a pasture, 133 feet east northeast of Fannin Church, SW1/4NE1/4 sec. 35, T. 7 N., R. 3 E.

Ap—0 to 3 inches; brown (10YR 5/3) fine sandy loam; weak fine granular structure; friable; many fine roots; few fine quartz gravel; strongly acid; clear smooth boundary.

BE—3 to 6 inches; mottled strong brown (7.5YR 5/6) and yellowish red (5YR 5/6) loam; weak medium subangular blocky structure; friable; common fine roots; yellowish brown stains in root channels; few fine quartz gravel; strongly acid; clear smooth boundary.

Bt—6 to 22 inches; yellowish red (5YR 5/6) sandy clay loam; moderate medium subangular blocky structure; friable; few fine roots; few fine pores; discontinuous clay films on vertical and horizontal faces of peds; very strongly acid; gradual smooth boundary.

Bx1—22 to 41 inches; mottled yellowish red (5YR 4/6), strong brown (7.5YR 5/6), and light brownish gray (10YR 6/2) sandy clay loam; weak coarse prismatic structure parting to moderate medium subangular blocky structure; firm; few fine roots between prisms; compact and brittle in about 65 percent of the mass; many fine voids; thin patchy clay films on faces of peds; light brownish gray (10YR 6/2) seams of loamy sand between prisms; few fine black concretions; few fine quartz gravel; very strongly acid; gradual wavy boundary.

Bx2—41 to 65 inches; mottled strong brown (7.5YR 5/6), brownish yellow (10YR 6/6), light yellowish brown (10YR 6/4), and light brownish gray (10YR 6/2) loam; weak coarse prismatic structure parting to moderate medium subangular blocky structure; very firm, compact and brittle in about 65 percent of the mass; few fine roots; common fine voids; few patchy clay films on faces of peds; few fine quartz gravel; thin narrow light brownish gray (10YR 6/2) seams between prisms; very strongly acid.

Depth to the fragipan ranges from 18 to 34 inches. Reaction ranges from very strongly acid or strongly acid throughout except in areas where the surface layer has been limed.

The A or Ap horizon has hue of 10YR, value of 4 or 5, and chroma of 2 to 4; or hue of 2.5Y, value of 4 or 5, and chroma of 2.

Some pedons have an E horizon that has hue of 10YR, value of 4 or 5, and chroma of 2. Texture is fine sandy loam, loam, or sandy loam.

The Bt horizon has hue of 5YR or 2.5YR, value of 4 or 5, and chroma of 4 to 8. Texture is clay loam, sandy clay loam, or loam. The content of clay in this horizon is between 18 and 33 percent, and the content of silt is between 20 and 50 percent.

The Bx horizon is mottled in shades of yellow, brown, gray, or red or has a matrix of yellowish red to yellowish brown. Mottles are in shades of gray, yellow, or red. The matrix of the prisms is very firm when dry and brittle when moist. In the main part of the fragipan, the matrix constitutes more than 60 percent of the volume. Texture is sandy clay loam, loam, or sandy loam. Black and brown concretions, if present, range from few to many, and quartz gravel, if present, are few and range from fine to coarse.

The C horizon is mottled in shades of yellow, brown, gray, or red, or has a matrix of yellowish red to yellowish

brown. Mottles are in shades of gray, yellow, or red. Texture is sandy clay loam, loam, or sandy loam. Few, fine to coarse quartz pebbles are in some pedons.

Pelahatchie Series

The Pelahatchie series consists of deep, moderately well drained soils that formed in a mantle of silty material and the underlying calcareous, clayey material. These soils are on uplands. The slopes range from 0 to 5 percent. The soils of the Pelahatchie series are fine-silty, mixed, thermic Aquic Hapludalfs.

Pelahatchie soils are associated with Falkner, Kipling, Providence, and Savannah soils. Falkner soils are on uplands and stream terraces, but they are somewhat poorly drained. These soils have acid, clayey lower horizons. Kipling soils are on uplands, but they are somewhat poorly drained. These soils have a fine control section. Providence soils are on uplands and stream terraces and are moderately well drained. These soils have a fragipan. They have fine-silty control section. Savannah soils are on uplands and stream terraces and are moderately well drained. These soils have a fragipan. They have a fine-loamy control section.

Typical pedon of Pelahatchie silt loam, 2 to 5 percent slopes; in a field, 1.5 miles north-northwest of West Leesburg, 3,000 feet west of Mississippi State Highway 43, 200 feet west of farm pond, NE1/4SW1/4 sec. 8, T. 7 N., R. 5 E.

Ap—0 to 6 inches; dark brown (10YR 3/3) silt loam; weak fine granular structure; friable; many fine roots; very strongly acid; abrupt smooth boundary.

Bt1—6 to 14 inches; dark brown (10YR 4/3) silt loam; few medium distinct strong brown (7.5YR 5/6) mottles; weak medium subangular blocky structure; friable; many fine roots; grayish brown (10YR 5/2) and light brownish gray (10YR 6/2) silt coatings in worm casts and on faces of some peds; very strongly acid; clear smooth boundary.

Bt2—14 to 21 inches; dark grayish brown (10YR 4/2) silty clay loam; many fine and medium prominent red (2.5YR 4/8) mottles; moderate fine and medium subangular blocky structure; firm; common fine roots; patchy clay films on faces of peds; grayish brown (10YR 5/2) and light brownish gray (10YR 6/2) silt coatings on faces of some peds; very strongly acid; gradual wavy boundary.

2Bt3—21 to 29 inches; mottled brown (10YR 5/3) and red (2.5YR 4/8) silty clay; moderate medium subangular and angular blocky structure; firm, plastic and sticky; few fine roots; clay films on faces of peds; grayish brown (10YR 5/2) silt coatings on faces of peds; brown concretions; strongly acid; gradual wavy boundary.

2Bt4—29 to 43 inches; mottled yellowish brown (10YR 5/6), light brownish gray (10YR 6/2), and red (2.5YR 4/8) silty clay; moderate medium and fine subangular and angular blocky structure; firm, plastic and sticky; few fine roots; clay films on faces of peds; few pressure faces on surfaces of peds; few fine black and brown concretions; medium acid; gradual wavy boundary.

2C—43 to 75 inches; mottled yellowish brown (10YR 5/6, 5/4) and light brownish gray (10YR 6/2) silty clay; few intersecting slickensides form wedge-shaped aggregates that part to moderate medium subangular blocky structure; very firm, sticky and plastic; common light gray lime nodules; few fine black concretions; mildly alkaline.

The thickness of the solum averages about 40 inches and ranges from 30 to 55 inches. The thickness generally is variable within a short distance. Depth to the marly clayey material ranges from 36 to 55 inches. The A and Bt horizons range from very strongly acid to medium acid except in areas where the surface layer has been limed. The 2Bt horizon ranges from strongly acid to mildly alkaline. The C horizon is mildly alkaline or moderately alkaline.

The A horizon has hue of 10YR; value of 2 or 3, and chroma of 2 or 3. Texture is silt loam or silty clay loam. A thin AB horizon is in some pedons. The AB horizon has hue of 10YR, value of 4 or 5, and chroma of 3 or 4. Texture is silt loam or silty clay loam.

The upper part of the Bt horizon has hue of 10YR, value of 4 or 5, and chroma of 2 to 4. Mottles, if present, are in shades of brown and range from few to many. Grayish or brownish silt coatings commonly are on vertical faces of peds and along worm casts. Texture is silt loam or silty clay loam. The lower part of the Bt horizon has hue of 10YR, value of 4 or 5, and chroma of 2 to 6; or hue of 2.5Y, value of 4 to 6, and chroma of 4 to 6 and commonly is mottled in shades of red, or it is mottled in shades of brown, yellow, or red. Texture is silty clay loam or silty clay. The content of clay in the particle-size control section, the upper 20 inches of the Bt horizon, is 20 to 35 percent. The 2Bt horizon commonly is mottled in shades of brown, red, yellow, or gray; or it has a matrix of 10YR or 2.5Y hue, value of 4 to 6, and chroma of 4 to 6. Mottles are in shades of brown, red, yellow, or gray. Brown and black concretions are few to many. Texture is silty clay or silty clay loam.

The C horizon is mottled in shades of yellow, brown, olive, and gray. Black concretions are few to many, and lime nodules, if present, also range from few to many. Texture is silty clay or clay.

Providence Series

The Providence series consists of deep, moderately well drained soils that formed in a mantle of silty sediment and the underlying loamy material. These soils are on stream terraces and uplands. These Providence soils have a fragipan. The slopes range from 2 to 15

percent. The soils of the Providence series are fine-silty, mixed, thermic Typic Fragiudalfs.

Providence soils are associated with Kisatchie, Ora, Pelahatchie, and Smithdale soils. Kisatchie soils are on uplands, but they are well drained. These soils have a fine control section. The Kisatchie soils are underlain by sandstone or siltstone. Ora soils are on uplands and are moderately well drained. These soils have a fragipan. They have a fine-loamy control section. Pelahatchie soils are on uplands and are moderately well drained. These soils are clayey in the lower part of the subsoil. Smithdale soils are on uplands, but they are well drained. These soils do not have a fragipan. They have a fine-loamy control section.

Typical pedon of Providence silt loam, 2 to 5 percent slopes, eroded (fig. 22); in a field, 1.3 miles southeast of Whitfield State Hospital along Mississippi State Highway 468, 200 feet southwest of pavement, SW1/4SW1/4 sec. 36, T. 5 N., R. 2 E.

Ap—0 to 5 inches; dark brown (10YR 4/3) silt loam; weak fine granular structure; friable; many fine roots; strongly acid; abrupt smooth boundary.

Bt1—5 to 17 inches; strong brown (7.5YR 5/6) silt loam; moderate medium subangular blocky structure; friable; common fine roots; common fine and medium pores; patchy clay films on faces of peds; very strongly acid; clear smooth boundary.

Bt2—17 to 26 inches; yellowish brown (10YR 5/6) silt loam; many medium faint strong brown (7.5YR 5/6) mottles; moderate medium subangular blocky structure; friable; few fine roots; common fine pores; thin patchy clay films on faces of peds; few fine black concretions; very strongly acid; gradual smooth boundary.

Btx1—26 to 36 inches; brown (7.5YR 5/4) silt loam; common medium distinct light brownish gray (10YR 6/2) and strong brown (7.5YR 5/8) mottles; weak coarse prismatic structure parting to moderate fine and medium subangular blocky structure; firm, compact and brittle; few fine roots between prisms; many fine voids; light brownish gray (10YR 6/2) silt loam coatings in cracks between prisms; few thin patchy clay films on faces of some peds; few fine black concretions; very strongly acid; gradual wavy boundary.

2Btx1—36 to 44 inches; mottled brown (7.5YR 4/4, 5/4), light brownish gray (10YR 6/2), and yellowish brown (10YR 5/6) silt loam that contains a noticeable amount of sand; weak coarse prismatic structure parting to moderate medium subangular and angular blocky structure; very firm, compact and brittle; few fine roots between prisms; many fine voids; light brownish gray silt between prisms; thin patchy clay films on faces of peds; few fine black concretions; very strongly acid; gradual wavy boundary.

Figure 22.—Profile of Providence silt loam, 2 to 5 percent slopes, eroded. The tip of the fragipan is at about 2.5 feet. The scale is in feet.

2Btx2—44 to 56 inches; mottled brownish yellow (10YR 6/6), yellowish brown (10YR 5/6), dark yellowish brown (10YR 4/6), and light brownish gray (10YR 6/2) silt loam that contains an appreciable amount of sand; weak coarse prismatic structure parting to moderate medium subangular blocky structure; firm, compact and brittle; many fine voids; grayish brown sand between prisms and faces of peds; thin patchy clay films on faces of peds and in pores; very strongly acid; gradual wavy boundary.

2Btx3—56 to 63 inches; mottled light yellowish brown (10YR 6/4), strong brown (7.5YR 5/6), yellowish brown (10YR 5/6), and light brownish gray (10YR 6/2) silt loam that contains an appreciable amount of sand; weak coarse prismatic structure parting to moderate medium subangular blocky structure; firm, compact and brittle; many fine voids; grayish brown sand between prisms and on faces of peds; thin

patchy clay films on faces of peds and in pores; strongly acid.

Depth to the fragipan ranges from 18 to 36 inches. Reaction ranges from very strongly acid to medium acid throughout except in areas where the surface layer has been limed.

The A or Ap horizon has hue of 10YR, value of 3 to 5, and chroma of 2 to 6.

Some pedons have an E horizon that has hue of 10YR, value of 3 to 5, and chroma of 2 to 4.

The Bt horizon has hue of 10YR, 7.5YR, or 5YR, value of 4 or 5, and chroma of 4 to 8. Texture is silt loam or silty clay loam. The content of clay in the Bt horizon commonly is 20 to 30 percent, and the content of sand ranges from 5 to 15 percent. The Btx and 2Btx horizons have a matrix of 5YR, 7.5YR or 10YR hue, value of 4 or 5, and chroma of 6 to 8. Mottles are gray, brown, and red, or they are mottled in shades of these colors. The upper part of the Bx horizon is silty clay loam or silt loam. The lower part of the Bx horizon is silt loam or silty clay loam and has noticeable amounts of sand, clay loam, sandy clay loam, loam, or sandy loam. Concretions, if present, range from few to many.

Quitman Series

The Quitman series consists of deep, moderately well drained soils that formed in loamy material. These soils are on uplands and stream terraces. The slopes range from 0 to 5 percent. The soils of the Quitman series are fine-loamy, siliceous, thermic Aquic Paleudults.

Quitman soils are associated with Savannah and Tippo soils. Savannah soils are on uplands and stream terraces and are moderately well drained. These soils have a fragipan. Tippo soils are on low stream terraces and flood plains and are somewhat poorly drained. These soils have a coarse-silty control section.

Typical pedon of Quitman loam, 2 to 5 percent slopes; in a soybean field, 2 miles northeast of Mississippi State Highway 471 along Mississippi State Highway 25, 0.6 mile east of county road, 3,000 feet south of road, NW1/4SE1/4, sec. 1, T. 6 N., R. 3 E.

Ap—0 to 5 inches; brown (10YR 4/3) loam; weak fine granular structure; friable; many fine and medium roots; few fine pores and worm casts; slightly acid; clear smooth boundary.

E—5 to 13 inches; yellowish brown (10YR 5/4) loam; common medium distinct brownish yellow (10YR 6/6) and light brownish gray (10YR 6/2) mottles; weak medium subangular blocky structure; friable; few fine roots; common fine pores; few sand grains coated and bridged with clay; very strongly acid; gradual smooth boundary.

Bt—13 to 24 inches; yellowish brown (10YR 5/4) loam; common light brownish gray (10YR 6/2) and brownish yellow (10YR 6/6) mottles; moderate medium subangular blocky structure; friable; few fine roots; clay films on faces of peds; sand grains coated and bridged with clay; very strongly acid; gradual smooth boundary.

Btx—24 to 65 inches; mottled yellowish brown (10YR 5/4), brownish yellow (10YR 6/6), and light brownish gray (10YR 6/2) clay loam; weak coarse prismatic structure parting to moderate medium subangular blocky structure; slightly firm and brittle; in the brown part, or in about 10 percent of the matrix, few fine roots; few fine pores; patchy clay films on faces of peds; sand grains coated and bridged with clay; very strongly acid.

The thickness of the solum is more than 60 inches. Reaction is very strongly acid or strongly acid throughout except in areas where the surface layer has been limed.

The Ap or A horizon has hue of 10YR, value of 3 to 6, and chroma of 1 to 4; hue of 2.5Y or 5Y, value of 5 or 6, and chroma of 3 to 4.

Some pedons have an E horizon that has hue of 10YR, value of 5 or 6, and chroma of 2 to 4. Texture is loam or fine sandy loam.

The Bt horizon has hue of 7.5YR, 10YR, or to 2.5Y, value of 5 or 6, and chroma of 4 to 8. Mottles of chroma of 2 or less are few or common. Texture is fine sandy loam, loam, or sandy clay loam. The Btx horizon is mottled in shades of brown, gray, red, and yellow. Texture is loam, sandy clay loam, or clay loam. In some pedons, the lower part of the Btx horizon is silty clay loam. About 10 to 20 percent of the mass of the lower part of the horizon is brittle and compact and in the strong brown part, the root zone is restricted. The content of clay in the particle-size control section, the upper 20 inches of the Bt horizon, ranges from 18 to 35 percent, and the content of silt ranges from 25 to 50 percent. Brown, black, or red concretions are few or common.

Savannah Series

The Savannah series consists of deep, moderately well drained soils that formed in loamy material. These soils are on uplands and stream terraces. Savannah soils have a fragipan. The slopes range from 2 to 8 percent. The soils of the Savannah series are fine-loamy, siliceous, thermic Typic Fragiudults.

Savannah soils are associated with Ora, Pelahatchie, Quitman, and Smithdale soils. Ora soils are on uplands and are moderately well drained. These soils have a fragipan. In the Bt horizon, Ora soils have hue of 5YR or have hue that is more red than 5YR. Pelahatchie soils are on uplands and are moderately well drained. These soils have a fine-silty control section. Quitman soils are on uplands and stream terraces and are moderately well drained. These soils do not have a fragipan. Smithdale

soils are on uplands, but they are well drained. These soils do not have a fragipan.

Typical pedon of Savannah loam, 2 to 5 percent slopes, eroded; in a field, 1.5 miles northeast of Mississippi State Highway 471 along Mississippi State Highway 25, 290 feet west of highway, SE1/4SE1/4 sec. 35, T. 7 N., R. 3 E.

Ap—0 to 5 inches; dark grayish brown (10YR 4/2) loam; weak coarse granular structure; very friable; many fine roots; few fine pebbles; strongly acid; clear smooth boundary.

E—5 to 11 inches; yellowish brown (10YR 5/4) fine sandy loam; weak medium subangular blocky structure parting to weak coarse granular structure; friable; common fine roots; few fine and medium concretions; strongly acid; clear smooth boundary.

Bt1—11 to 19 inches; yellowish brown (10YR 5/6) loam; moderate medium subangular blocky structure; friable; few fine roots; common fine pores; thin patchy clay films on faces of peds; common fine black and brown concretions; very strongly acid; clear smooth boundary.

Bt2—19 to 28 inches; yellowish brown (10YR 5/6) loam; common fine faint brownish yellow mottles; moderate medium subangular blocky structure; friable; few fine roots; pale brown (10YR 6/3) silt coatings on faces of some peds; common fine pores; thin patchy clay films on faces of peds; common fine black and brown concretions; very strongly acid; gradual smooth boundary.

Bx1—28 to 40 inches; mottled yellowish brown (10YR 5/6, 5/8) and light brownish gray (10YR 6/2) loam; weak coarse prismatic structure parting to moderate medium subangular blocky structure; firm, compact and brittle in about 60 percent of volume; few roots between prisms; many fine voids; thin patchy clay films on faces of peds; prisms coated with light brownish gray (10YR 6/2) loam; very strongly acid; clear smooth boundary.

Bx2—40 to 48 inches; mottled strong brown (7.5YR 5/6, 5/8), yellowish brown (10YR 5/6), light brownish gray (10YR 6/2), and brown (10YR 5/3) loam; weak coarse prismatic structure parting to moderate medium subangular blocky structure; firm, compact and brittle in about 65 percent of volume; few fine roots between prisms; patchy clay films in pores and on faces of peds; many fine pores; common fine voids; grayish brown (10YR 5/2) loam in seams between prisms; very strongly acid; gradual wavy boundary.

Bx3—48 to 65 inches; mottled yellowish brown (10YR 5/6), dark yellowish brown (10YR 4/4), and light brownish gray (10YR 6/2) sandy loam; weak coarse prismatic structure parting to weak medium subangular blocky structure; firm, compact and brittle in about 60 percent of volume; few patchy clay films on faces of peds; few black concretions; very strongly acid.

The thickness of the solum ranges from 50 to more than 80 inches. Depth to the fragipan ranges from 16 to 38 inches. Reaction is very strongly acid or strongly acid throughout except in areas where the surface layer has been limed. In areas that have not been cultivated, the A horizon can be 1 to 4 inches thick, and it has hue of 10YR, value of 3, and chroma of 1 or 2.

The Ap and E horizons have hue of 10YR, value of 4 or 5, and chroma of 2 to 4. Texture of the E horizon is loam or fine sandy loam.

The Bt horizon has hue of 7.5YR or 10YR, value of 5, and chroma of 4, 6, or 8. Texture is sandy clay loam, clay loam, or loam. The contents of clay in the Bt horizon ranges from 18 to 32 percent, and the content of silt ranges from 20 to 50 percent. The Bx horizon is mottled in shades of yellow, brown, red, and gray, or it has hue of 10YR, value of 5, and chroma of 4 to 8. Mottles are in shades of gray. This horizon is very firm and brittle, when moist, in more than 60 percent of the volume. Texture is sandy clay loam, clay loam, or loam.

Smithdale Series

The Smithdale series consists of deep, well drained soils that formed in loamy marine sediment. These soils are on hilly uplands. The slopes range from 5 to 40 percent. The soils of the Smithdale series are fine-loamy, siliceous, thermic Typic Hapludults.

Smithdale soils are associated with Kisatchie, Maben, Ora, Providence, and Savannah soils. Kisatchie soils are on uplands and are well drained, but they have a fine control section and are underlain by sandstone or siltstone at a depth of 20 to 40 inches. Maben soils are well drained and are on uplands, but they have a fine control section. Ora soils are on uplands, but they are moderately well drained and have a fragipan. Providence and Savannah soils are on uplands and stream terraces. These soils are moderately well drained and have a fragipan. In addition, Providence soils have a fine-silty control section.

Typical pedon of Smithdale fine sandy loam, 8 to 17 percent slopes, eroded; in a wooded area, 2.6 miles north of Pelahatchie along a local road, 0.3 mile east along intersecting local road, 100 feet north of county road, NE1/4SW1/4 sec. 10, T. 6 N., R. 5 E.

Ap—0 to 4 inches; dark grayish brown (10YR 4/2) fine sandy loam; few fine distinct light yellowish brown (10YR 6/4) mottles; weak fine granular structure; very friable; many fine and medium roots; very strongly acid; clear smooth boundary.

E—4 to 10 inches; yellowish brown (10YR 5/4) fine sandy loam; few fine distinct dark grayish brown (10YR 4/2) mottles; weak fine granular structure;

very friable; common fine and medium roots; very strongly acid; clear smooth boundary.

BE—10 to 15 inches; yellowish brown (10YR 5/6) fine sandy loam; weak fine subangular blocky and granular structure; very friable; common fine and medium roots; some sand grains coated and bridged with clay; very strongly acid; clear smooth boundary.

Bt1—15 to 41 inches; red (2.5YR 5/8) sandy clay loam; few fine distinct strong brown (7.5YR 5/8) mottles; moderate medium subangular blocky structure; friable; few fine roots; common patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.

Bt2—41 to 62 inches; red (2.5YR 5/8) sandy loam; moderate medium subangular blocky structure; friable; few fine roots; common thin clay films on faces of peds; very strongly acid; gradual wavy boundary.

Bt3—62 to 75 inches; red (2.5YR 5/6) sandy loam; common fine and medium distinct reddish yellow (5YR 6/6) mottles; weak medium subangular blocky structure; friable; sand grains coated and bridged with clay; few brown pockets of pale brown sand grains; very strongly acid.

The thickness of the solum ranges from 60 to more than 100 inches. Reaction is very strongly acid or strongly acid throughout except in areas where the surface layer has been limed.

The A horizon has hue of 10YR, value of 4, and chroma of 1 to 3. Some pedons have an Ap horizon that has hue of 10YR, value of 4 or 5, and chroma of 2 to 6; or hue of 2.5Y, value of 5, and chroma of 2.

Some pedons have an E horizon that has hue of 10YR, value of 5 or 6, and chroma of 2 to 4. Texture is fine sandy loam, sandy loam, or loamy sand.

Some pedons have a BA or BE horizon that has hue of 10YR, 7.5YR, or 5YR, value of 4 or 5, and chroma of 4 to 8. Texture is fine sandy loam, sandy loam, or loamy sand.

The Bt horizon has hue of 5YR or 2.5YR, value of 4 or 5, and chroma of 6 to 8. In the upper part of the Bt horizon are some pedons that have few to many mottles in shades of red and brown. Texture is clay loam, sandy clay loam, or loam. The upper 20 inches is 18 to 33 percent clay and 15 to 45 percent silt. The lower part of the Bt horizon has few to many pockets of pale brown sand grains. Texture is loam or sandy loam. Chert, quartz, or ironstone gravel is about 10 percent of the volume in some pedons. The Bt horizon has moderate or weak subangular blocky structure, or it has weak prismatic structure parting to subangular and angular blocky structure.

Tippah Series

The Tippah series consists of deep, moderately well drained soils that formed in a mantle of silty material and the underlying clayey material. These soils are on uplands. The slopes range from 2 to 12 percent. The soils of the Tippah series are fine-silty, mixed, thermic Aquic Paleudalfs.

Tippah soils are associated with Falkner, Kipling, Kisatchie, and Maben soils. Falkner soils are on uplands and stream terraces, but they are somewhat poorly drained. These soils have a Bt horizon that has hue of 10YR or has hue that is more yellow than 10YR. Kipling soils are on uplands, but they are somewhat poorly drained. These soils have a fine control section. Kisatchie soils are on uplands, but they are well drained. These soils are underlain by siltstone or sandstone. Maben soils are on uplands, but they are well drained. These soils have a fine control section.

Typical pedon of Tippah silt loam, 2 to 5 percent slopes, eroded; in a field of ryegrass, about 11 miles southeast of Brandon, 1 mile south of Mississippi State Highway 18, SE1/4SE1/4 sec. 33, T. 4 N., R. 4 E.

Ap—0 to 5 inches; dark grayish brown (10YR 4/2) silt loam; weak fine granular structure; friable; many fine roots; slightly acid; clear smooth boundary.

E—5 to 8 inches; yellowish brown (10YR 5/4) silt loam and noticeable amounts of sand; common pockets of Ap material and pale brown (10YR 6/3) mottles; weak medium subangular blocky structure; friable; common fine roots; medium acid; clear smooth boundary.

Bt1—8 to 21 inches; yellowish red (5YR 5/6) silty clay loam; moderate medium subangular blocky structure; friable; many fine roots; discontinuous clay films; very strongly acid; gradual smooth boundary.

Bt2—21 to 25 inches; strong brown (7.5YR 5/6) silty clay loam; few medium distinct red (2.5YR 5/8) and few fine distinct light brownish gray (10YR 6/2) mottles; moderate medium subangular blocky structure; friable; many fine roots; discontinuous clay films on faces of peds; thick pale brown (10YR 6/3) silt coatings on peds; very strongly acid; gradual smooth boundary.

2Bt3—25 to 41 inches; mottled strong brown (7.5YR 5/6), light brownish gray (10YR 6/2) and brown (7.5YR 5/2) clay loam; moderate medium subangular blocky structure; firm; thick discontinuous clay films on faces of peds; very strongly acid; gradual wavy boundary.

2Bt4—41 to 50 inches; mottled grayish brown (10YR 5/2), light brownish gray (10YR 6/2), yellowish brown (10YR 5/6), and red (2.5YR 4/6) clay; moderate medium subangular blocky structure; cracks filled with gray loam; thick discontinuous clay films on faces of peds; few medium concretions; few pressure faces; very strongly acid; gradual wavy boundary.

2Bt5—50 to 65 inches; grayish brown (10YR 5/2) clay; few fine distinct red (2.5YR 4/6) mottles; moderate

medium subangular blocky structure; cracks and pressure faces filled with light brown loam; thick discontinuous clay films on faces of peds; very strongly acid.

The thickness of the solum is more than 60 inches. Reaction is very strongly acid to medium acid throughout except in areas where the surface layer has been limed.

The Ap horizon has hue of 10YR, value of 4 to 6, and chroma of 2 to 6.

Some pedons have an E horizon that has hue of 10YR, value of 4 to 6, and chroma of 2 to 6. Texture is loam or silt loam.

The Bt horizon has hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 4 to 6; or hue of 7.5YR, value of 5, and chroma of 6 to 8. The lower part of the Bt horizon has few to many mottles in shades of brown, gray, or yellow. Mottles of chroma of 2 or less are within a depth of 30 inches. Texture is silt loam or silty clay loam. The content of clay in the particle-size control section, the upper 20 inches of the Bt horizon, ranges from 20 to 35 percent. The 2Bt horizon commonly is mottled in shades of red, gray, and yellow. Some pedons have a matrix ranging from red to gray and have mottles ranging from few to many in shades of yellow, brown, red, or gray. Texture is silty clay loam, silty clay, or clay.

Tippo Series

The Tippo series consists of deep, somewhat poorly drained soils that formed in silty material. These soils are on low stream terraces and flood plains. The topography is characterized by broad flats. The slopes range from 0 to 2 percent. The soils of the Tippo series are coarse-silty, mixed, thermic Aquic Glossudalfs.

Tippo soils are associated with Cahaba, Guyton, Leverett, and Quitman soils. Cahaba soils are on low stream terraces but are well drained. These soils have a fine-loamy control section. Guyton soils are on low stream terraces and flood plains but are poorly drained. These soils have a dominantly gray subsoil. They have a fine-silty control section. Leverett soils are on low stream terraces but are well drained. These soils do not have mottles of chroma of 2 or less in the upper 10 inches of the Bt horizon. Quitman soils are on uplands and stream terraces, and they are moderately well drained. These soils have a fine-loamy control section.

Typical pedon of Tippo silt loam, 0 to 2 percent slopes, occasionally flooded; in a pasture, 0.25 mile northeast of Luckney, 2,100 feet west of intersection and a local road, SW1/4SW1/4 sec. 23, T. 6 N., R. 2 E.

Ap—0 to 5 inches; brown (10YR 5/3) silt loam; common fine distinct grayish brown (10YR 5/2) mottles; weak fine granular structure; friable; many fine roots; common fine black concretions; common black stains; medium acid; clear smooth boundary.

Bt1—5 to 11 inches; yellowish brown (10YR 5/4) silt loam; few fine faint pale brown and light brownish gray (10YR 6/2) mottles; moderate fine and medium subangular blocky structure; friable; common fine roots; common fine pores; few thin patchy clay films; few fine concretions; very strongly acid; gradual wavy boundary.

Bt2—11 to 17 inches; yellowish brown (10YR 5/4) silt loam; common medium distinct light brownish gray (10YR 6/2) mottles, and few fine faint brownish yellow mottles; moderate fine and medium subangular blocky structure parting to weak fine granular structure; friable; few fine roots; common fine pores; few thin patchy clay films; few fine concretions; very strongly acid; gradual wavy boundary.

Egb—17 to 22 inches; light brownish gray (10YR 6/2) silt loam; common medium distinct yellowish brown (10YR 5/4), brown (10YR 5/3), and pale brown (10YR 6/3) mottles; weak coarse prismatic structure parting to weak medium subangular blocky structure; friable, slightly brittle; few fine roots; common fine pores; few fine brown concretions; very strongly acid; gradual wavy boundary.

B/E—22 to 30 inches; brown (10YR 5/4) silt loam (B); tongues of pale brown (10YR 6/3) and light brownish gray (10YR 6/2) silt (E), 1 inch to 2 inches wide at intervals of 3 to 4 inches; weak coarse prismatic structure parting to moderate medium subangular blocky structure; friable; slightly brittle in 20 percent of the mass; few fine roots; common fine pores; patchy clay films; few fine brown concretions; strongly acid; gradual irregular boundary.

Btb1—30 to 37 inches; mottled brown (10YR 5/3) and light brownish gray (10YR 6/2) silt loam; weak coarse prismatic structure parting to moderate medium subangular blocky structure; friable; few fine roots; gray silt coatings on faces of some peds; few fine pores; patchy clay films; strongly acid; gradual wavy boundary.

Btb2—37 to 64 inches; mottled dark yellowish brown (10YR 4/4), light brownish gray (10YR 6/2) and pale brown (10YR 6/3) silt loam; weak coarse prismatic structure parting to weak medium subangular blocky structure; friable; few fine roots; gray silt coatings on faces of some peds; few thin patchy clay films; medium acid.

The thickness of the solum ranges from 60 to more than 80 inches. Reaction ranges from very strongly acid to medium acid except in areas where the surface layer has been limed.

The A horizon has hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 2 to 4.

The Bt1 and Bt2 horizons have hue of 10YR, value of 4 to 6, and chroma of 3 to 6. Mottles of chroma of 2 or less are few to many, or the Bt1 and Bt2 horizons are

mottled in shades of brown and gray. Texture is silt or silt loam. The upper 20 inches of the Bt horizon is less than 15 percent sand that is coarser than very fine sand and 8 to 18 percent clay.

The E horizon and E part of the B/E horizon have hue of 10YR, value of 6, and chroma of 1 to 3. The B part of the B/E horizon has hue of 10YR, value of 5 or 6, and chroma of 4 to 6. Texture of the E and B/E horizons are silt or silt loam. The B part, which commonly is 10 to 20 percent of the mass of the B/E horizon, is slightly brittle.

The Bt horizon is mottled in shades of brown and gray. Texture is silt or silt loam. The Bt horizon commonly has coarse prismatic structure, tongues of gray silt between the prisms, and coatings on the faces of prisms.

Urbo Series

The Urbo series consists of deep, somewhat poorly drained soils that formed in clayey alluvium. These soils are on flood plains. The slopes range from 0 to 2 percent. The soils of the Urbo series are fine, mixed, acid, thermic Aeric Haplaquepts.

Urbo soils are associated with Arkabutla, Gillsburg, and Kirkville soils. These associated soils are on flood plains. Arkabutla soils are somewhat poorly drained. They have a fine-silty control section. Gillsburg soils are somewhat poorly drained. They have a coarse-silty control section. Kirkville soils are moderately well drained. They have a coarse-loamy control section.

Typical pedon of Urbo silty clay loam, occasionally flooded; in a pasture in Clarksburg, on Mulberry Creek flood plain, 1 mile west of Scott County line, at Clarksburg along local road, 0.6 mile north along intersecting local road, about 2,400 feet east of road, SW1/4SW1/4 sec. 24, T. 6 N., R. 5 E.

Ap—0 to 4 inches; dark grayish brown (10YR 4/2) silty clay loam; weak fine granular structure; friable; common fine pores; common fine and medium roots; few fine black concretions; strongly acid; clear smooth boundary.

A—4 to 10 inches; brown (10YR 5/3) silty clay loam; many fine and medium faint dark yellowish brown (10YR 4/4) and pale brown (10YR 6/3) mottles; weak medium subangular blocky sturcture; friable; common fine pores; common medium and fine roots; few fine black concretions; very strongly acid; clear smooth boundary.

Bcw—10 to 18 inches; brown (10YR 5/3) silty clay loam; common medium faint dark brown (10YR 4/3) and common medium distinct light brownish gray (10YR 6/2) mottles; weak medium subangular blocky structure; firm; common fine black concretions; common fine roots; very strongly acid; clear wavy boundary.

Bcg1—18 to 30 inches; light brownish gray (2.5Y 6/2) silty clay; common medium distinct dark yellowish brown (10YR 4/4) and yellowish brown (10YR 5/6) mottles; weak coarse prismatic structure parting to weak medium subangular blocky structure; firm, sticky and plastic; common fine and medium black concretions; common fine roots; few stress surfaces on faces of peds; few clay films in pores; very strongly acid; gradual wavy boundary.

Bcg2—30 to 36 inches; light brownish gray (2.5Y 6/2) silty clay; common medium distinct yellowish brown (10YR 5/8) mottles; weak coarse prismatic structure parting to weak medium subangular blocky structure; firm, sticky and plastic; few fine roots; common fine black concretions; few pressure faces on peds; very strongly acid; gradual wavy boundary.

Bg—36 to 61 inches; grayish brown (2.5Y 5/2) silty clay; common medium distinct dark yellowish brown (10YR 4/4) and yellowish brown (10YR 5/6) mottles; weak coarse prismatic structure parting to weak medium subangular structure; sticky and plastic; few fine roots; few fine black concretions; few pressure faces on peds; very strongly acid.

The thickness of the solum is more than 60 inches. Reaction is very strongly acid or strongly acid throughout except in areas where the surface layer has been limed.

The Ap and A horizons have hue of 10YR, value of 4 or 5, and chroma of 2 or 3; or hue of 2.5Y, value of 4 or 5, and chroma of 2.

The upper part of the B horizon has hue of 10YR, value of 4 to 6, and chroma of 2 to 4; or hue of 2.5Y, value of 4 or 5, and chroma of 2 to 4. Mottles, if present, are few to many in shades of gray, brown, and yellow. The lower part of the B horizon has hue of 10YR, value of 4 to 6, and chroma of 1 or 2; or hue of 2.5Y, value of 4 to 7, and chroma of 2. Mottles are few to many in shades of red, brown, yellow, or gray. Texture of the B horizon is silty clay loam, clay loam, silty clay, or clay. The content of clay in the 10- to 40-inch control section ranges from 35 to 55 percent. A few patches of oriented clay are in pores and cracks. Black and brown concretions are few or common throughout.

Formation of the Soils

In this section, the factors of soil formation are presented as they relate to the soils of Rankin County. In addition, the processes of soil formation are described.

Factors of Soil Formation

Soil is the product of the combined effects of parent material, climate, living organisms, relief, and time *(5)*. The characteristics of a soil at any place depend upon a combination of these five environmental factors at that particular place. In many places, however, one or two of the factors are dominant and fix most of the properties of a particular soil.

Parent Material

Parent material, the unconsolidated mass in which a soil forms, largely determines the chemical and mineralogical composition of a soil. The parent materials of the soils in Rankin County are sediments of marine origin, of loess, and of alluvium.

According to most soil scientists, loess is mostly glacial rock flour, which was derived from the melting glacial ice that was carried southward and deposited on floodplains by the Mississippi River. It was later redeposited by wind on the older geologic formations of marine origin.

Some of the soils in Rankin County formed in more than one kind of parent material. In places where the overlying layer of loess is thin, the upper horizons formed in weathered loess and the lower horizons formed in loamy material of marine origin. Providence soils formed in this kind of parent material.

The parent material in the steeper areas of the county is dominantly sediment of marine origin. This sediment consists of mixed particles of sand, silt, and clay. Smithdale soils formed in this kind of parent material.

The soils along the streams in the county formed in alluvium that washed down from the surrounding uplands and was redeposited by the streams on the flood plains. The alluvial particles are dominantly silt mixed with sand and clay. Oaklimeter soils formed in this kind of parent material.

Climate

Climate as a genetic factor affects the physical, chemical, and biological relationships of the soil primarily through the influence of precipitation and temperature. Water dissolves minerals, supports biological activity, and transports mineral and organic residue through the soil profile. The amount of water that percolates through the soil over a broad area depends mainly on the rainfall, the relative humidity, and the length of the frost-free period. The amount of downward percolation is also affected by physiographic position and soil permeability. In Rankin County rainfall is abundant, averaging about 55 inches a year. Rainfall is slightly higher in spring and summer than in fall and winter.

The warm temperature influences the kind and growth of organisms and also affects the speed of physical and chemical reactions in the soil. The climate of Rankin County is warm and moist and presumedly is similar to the climate that existed when the soils formed. Freezing and thawing have very little effect on weathering and on the soil-forming processes.

Living Organisms

Micro-organisms, plants, earthworms, and all other organisms that live on and in the soil have an important effect on the formation of the soil. Bacteria, fungi, and other micro-organisms help in the weathering of rock and in decomposing the organic matter. Larger plants alter the soil climate in small areas (soil microclimate), supply organic matter, and transfer elements from the subsoil to the surface layer.

The kinds and numbers of plants and animals that live on and in the soil are determined mainly by climate. To a varying degree, this can also be determined by parent material, relief, and age of the soil.

Not much is known of the fungi and micro-organisms in the soils of Rankin County except that they mostly are in the top few inches. Earthworms and other small invertebrates are continually mixing the soil in the surface layer, where they are more active than in the other layers. Mixing of the soil materials by rodents is not of much consequence in this county.

Except on the bottom land, the native vegetation in Rankin County is chiefly oak, hickory, and pine. On the better drained areas of bottom land, the trees are

lowland hardwoods, mainly yellow-poplar, sweetgum, ash, and oak. Cypress, birch, blackgum, beech, and water-tolerant oak are mainly in the wetter areas of the bottom land.

Relief

The relief in Rankin County ranges from nearly level on the flood plains to steep on the uplands. Relief, or lay of the land, affects the drainage and rate of runoff. Thus, relief influences the moisture conditions in soils and the erosion that occurs on the land surface. The rate of runoff is greater on steep slopes than it is on the gentle slopes and level areas; therefore, the amount of water that moves through the soil during development depends partly on the relief. In level areas and in depressions, the soils are likely to be gray and wet.

Fragipan formation is also associated with relief and drainage. These compact, brittle horizons have the strongest expressions on level to gently sloping topography and under somewhat poorly drained to moderately well drained conditions. The Ora, Providence, and Savannah soils have a fragipan. Fragipans govern the depth that roots, air, and water can penetrate the soils, and they also govern the permeability and wetness of the soils. When compared to other factors of soil development, relief and drainage are more local in scope. Their influence on the soil can be observed on small farms. Relief, or lay of land, is important in land use and in crop productivity.

Time

A long time generally is required for the formation of a soil that has distinct horizons. The difference in the length of time that parent material has been in place is commonly reflected in the degree of development of the soil profile.

The soils in Rankin County range from young to old. The young soils have a weakly developed profile, and the older soils have a well-defined horizon.

Arkabutla soils are examples of younger soils that have weakly-defined horizons. These soils formed in silty materials on the flood plains. Examples of older soils on uplands are those of the Smithdale series. Smithdale soils are loamy textured and have well-defined horizons.

Processes of Horizon Differentiation

Several processes were involved in the formation of horizons in the soils of Rankin County. These processes are the accumulation of organic matter, the leaching of calcium carbonates and bases, the reduction and transfer of iron and the formation and translocation of silicate clay minerals. In most soils, more than one of these processes have been active in the development of horizons.

The accumulation of organic matter in the upper part of the profile results in the formation of an A horizon. The content of organic matter in the soils in Rankin County is low.

Carbonates and bases have been leached from nearly all of the soils. This leaching has contributed to the development of horizons. Soil scientists generally agree that leaching of bases from the upper horizons of a soil commonly precedes the translocation of silicate clay minerals. Most of the soils in this county are moderately to strongly leached.

The reduction and transfer of iron, a process called gleying, is evident in the poorly drained soils of the county. This gleying is indicated by the gray color of the horizons below the surface layer. Segregation of iron is indicated in some horizons by reddish brown mottles and concretions.

In some soils in Rankin County, the translocations of clay minerals has contributed to horizon development. The eluviated E horizon that is above the B horizon contains less clay than the B horizon and generally is lighter in color. The B horizon commonly has accumulations of clay or clay films in pores and on the ped surfaces. These soils were probably leached of carbonates and soluble salts to a considerable extent before translocation of silicate clays took place.

The leaching of bases and subsequent translocation of silicate clay are among the more important processes of horizon differentiation that have taken place in the soils of Rankin County. In the Providence soils and in other soils in the county, translocated silicate clays have accumulated in the B horizon in the form of clay films.

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Glossary

ABC soil. A soil having an A, a B, and a C horizon.

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well-aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Association, soil. A group of soils geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as—

	Inches
Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	9 to 12
Very high	more than 12

Base saturation. The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, K), expressed as a percentage of the total cation-exchange capacity.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bench terrace. A raised, level or nearly level strip of earth constructed on or nearly on the contour, supported by a barrier of rocks or similar material, and designed to make the soil suitable for tillage and to prevent accelerated erosion.

Bisequum. Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.

Bottom land. The normal flood plain of a stream, subject to flooding.

Capillary water. Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity, but is more precise in meaning.

Chiseling. Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard compacted layers to a depth below normal plow depth.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels, i.e., clay coatings, clay skins.

Coarse fragments. If round, mineral or rock particles 2 millimeters to 25 centimeters (10 inches) in diameter; if flat, mineral or rock particles (flagstone) 15 to 38 centimeters (6 to 15 inches) long.

Coarse textured soil. Sand or loamy sand.

Complex slope. Irregular or variable slope. Planning or constructing terraces, diversions, and other water-control measures on a complex slope is difficult.

Complex, soil. A map unit of two or more kinds of soil in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils are somewhat similar in all areas.

Concretions. Grains, pellets, or nodules of various sizes, shapes, and colors consisting of concentrated compounds or cemented soil grains. The composition of most concretions is unlike that of the surrounding soil. Calcium carbonate and iron oxide are common compounds in concretions.

Consistence, soil. The feel of the soil and the ease with which a lump can be crushed by the fingers. Terms commonly used to describe consistence are—
Loose.—Noncoherent when dry or moist; does not hold together in a mass.
Friable.—When moist, crushes easily under gentle pressure between thumb and forefinger and can be pressed together into a lump.
Firm.—When moist, crushes under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable.
Plastic.—When wet, readily deformed by moderate pressure but can be pressed into a lump; will form a "wire" when rolled between thumb and forefinger.
Sticky.—When wet, adheres to other material and tends to stretch somewhat and pull apart rather than to pull free from other material.
Hard.—When dry, moderately resistant to pressure; can be broken with difficulty between thumb and forefinger.
Soft.—When dry, breaks into powder or individual grains under very slight pressure.
Cemented.—Hard; little affected by moistening.

Contour stripcropping. Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Corrosive. High risk of corrosion to uncoated steel or deterioration of concrete.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Decreasers. The most heavily grazed climax range plants. Because they are the most palatable, they are the first to be destroyed by overgrazing.

Deferred grazing. Postponing grazing or resting grazingland for a prescribed period.

Depth to rock (in tables). Bedrock is too near the surface for the specified use.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Drainage class (natural). Refers to the frequency and duration of periods of saturation or partial saturation during soil formation, as opposed to altered drainage, which is commonly the result of artificial drainage or irrigation but may be caused by the sudden deepening of channels or the blocking of drainage outlets. Seven classes of natural soil drainage are recognized:
Excessively drained.—Water is removed from the soil very rapidly. Excessively drained soils are commonly very coarse textured, rocky, or shallow. Some are steep. All are free of the mottling related to wetness.
Somewhat excessively drained.—Water is removed from the soil rapidly. Many somewhat excessively drained soils are sandy and rapidly pervious. Some are shallow. Some are so steep that much of the water they receive is lost as runoff. All are free of the mottling related to wetness.
Well drained.—Water is removed from the soil readily, but not rapidly. It is available to plants throughout most of the growing season, and wetness does not inhibit growth of roots for significant periods during most growing seasons. Well drained soils are commonly medium textured. They are mainly free of mottling.
Moderately well drained.—Water is removed from the soil somewhat slowly during some periods. Moderately well drained soils are wet for only a short time during the growing season, but periodically they are wet long enough that most mesophytic crops are affected. They commonly have a slowly pervious layer within or directly below the solum, or periodically receive high rainfall, or both.
Somewhat poorly drained.—Water is removed slowly enough that the soil is wet for significant periods during the growing season. Wetness markedly restricts the growth of mesophytic crops unless artificial drainage is provided. Somewhat poorly drained soils commonly have a slowly pervious layer, a high water table, additional water from seepage, nearly continuous rainfall, or a combination of these.
Poorly drained.—Water is removed so slowly that the soil is saturated periodically during the growing season or remains wet for long periods. Free water is commonly at or near the surface for long enough during the growing season that most mesophytic crops cannot be grown unless the soil is artificially drained. The soil is not continuously saturated in layers directly below plow depth. Poor drainage results from a high water table, a slowly pervious layer within the profile, seepage, nearly continuous rainfall, or a combination of these.
Very poorly drained.—Water is removed from the soil so slowly that free water remains at or on the surface during most of the growing season. Unless the soil is artificially drained, most mesophytic crops cannot be grown. Very poorly drained soils are commonly level or depressed and are frequently ponded. Yet, where rainfall is high and nearly

continuous, they can have moderate or high slope gradients.

Drainage, surface. Runoff, or surface flow of water, from an area.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Eolian soil material. Earthy parent material accumulated through wind action; commonly refers to sandy material in dunes or to loess in blankets on the surface.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of the activities of man or other animals or of a catastrophe in nature, such as fire, that exposes the surface.

Excess fines (in tables). Excess silt and clay are in the soil. The soil is not a source of gravel or sand for construction purposes.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Field moisture capacity. The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity,* or *capillary capacity*.

Fine textured soil. Sandy clay, silty clay, and clay.

First bottom. The normal flood plain of a stream, subject to frequent or occasional flooding.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Foot slope. The inclined surface at the base of a hill.

Fragipan. A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restricts roots. When dry, it is hard or very hard and has a higher bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors and mottles.

Graded stripcropping. Growing crops in strips that grade toward a protected waterway.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel. Rounded or angular fragments of rock up to 3 inches (2 millimeters to 7.5 centimeters) in diameter. An individual piece is a pebble.

Green-manure crop (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

Ground water (geology). Water filling all the unblocked pores of underlying material below the water table.

Gully. A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an upper case letter represents the major horizons. Numbers or lower case letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the *Soil Survey Manual*. The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue at the surface of a mineral soil.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon.—The mineral horizon below an O, A, or E horizon. The B horizon is, in part, a layer of transition from the overlying horizon to the underlying C horizon. The B horizon also has distinctive characteristics, such as accumulation of clay, sesquioxides, humus, or a combination of these; prismatic or blocky structure; redder or browner colors than those in the A horizon; or a combination of these. The combined A and B horizons are generally called the solum, or true soil. If a soil does not have a B horizon, the A horizon alone is the solum.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the A or B horizon. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, the Arabic numeral 2 precedes the letter C.

R layer.—Consolidated rock (unweathered bedrock) beneath the soil. The rock commonly underlies a C horizon, but can be directly below an A or a B horizon.

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups. Refers to soils grouped according to their runoff-producing characteristics. The chief consideration is the inherent capacity of soil bare of vegetation to permit infiltration. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff. Soils are assigned to four groups. In group A are soils having a high infiltration rate when thoroughly wet and having a low runoff potential. They are mainly deep, well drained, and sandy or gravelly. In group D, at the other extreme, are soils having a very slow infiltration rate and thus a high runoff potential. They have a claypan or clay layer at or near the surface, have a permanent high water table, or are shallow over nearly impervious bedrock or other material. A soil is assigned to two hydrologic groups if part of the acreage is artificially drained and part is undrained.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil. A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Increasers. Species in the climax vegetation that increase in amount as the more desirable plants are reduced by close grazing. Increasers commonly are the shorter plants and the plants that are the less palatable to livestock.

Infiltration. The downward entry of water into the immediate surface of soil or other material. This contrasts with percolation, which is movement of water through soil layers or material.

Infiltration capacity. The maximum rate at which water can infiltrate into a soil under a given set of conditions.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Intake rate. The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake in inches per hour is expressed as follows:

Less than 0.2	very low
0.2 to 0.4	low
0.4 to 0.75	moderately low
0.75 to 1.25	moderate
1.25 to 1.75	moderately high
1.75 to 2.5	high
More than 2.5	very high

Invaders. On range, plants that encroach into an area and grow after the climax vegetation has been reduced by grazing. Generally, invader plants follow disturbance of the surface.

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are—

Border.—Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes, or borders.

Basin.—Water is applied rapidly to nearly level plains surrounded by levees or dikes.

Controlled flooding.—Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.

Corrugation.—Water is applied to small, closely spaced furrows or ditches in fields of close-growing crops or in orchards so that it flows in only one direction.

Drip (or trickle).—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

Furrow.—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

Sprinkler.—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

Subirrigation.—Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.

Wild flooding.—Water, released at high points, is allowed to flow onto an area without controlled distribution.

Leaching. The removal of soluble material from soil or other material by percolating water.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Loess. Fine grained material, dominantly of silt-sized particles, deposited by wind.

Low strength. The soil is not strong enough to support loads.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Miscellaneous area. An area that has little or no natural soil and supports little or no vegetation.

Moderately coarse textured soil. Sandy loam and fine sandy loam.

Moderately fine textured soil. Clay loam, sandy clay loam, and silty clay loam.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Mottling generally indicates poor aeration and impeded drainage. Descriptive terms are as follows: abundance—*few, common,* and *many*; size—*fine, medium,* and *coarse*; and contrast—*faint, distinct,* and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium*, from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse*, more than 15 millimeters (about 0.6 inch).

Munsell notation. A designation of color by degrees of the three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color of 10YR hue, value of 6, and chroma of 4.

Neutral soil. A soil having a pH value between 6.6 and 7.3. (See Reaction, soil.)

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter. Plant and animal residue in the soil in various stages of decomposition.

Pan. A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan, fragipan, claypan, plowpan,* and *traffic pan*.

Parent material. The unconsolidated organic and mineral material in which soil forms.

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The downward movement of water through the soil.

Percs slowly (in tables). The slow movement of water through the soil adversely affects the specified use.

Permeability. The quality of the soil that enables water to move downward through the profile. Permeability is measured as the number of inches per hour that water moves downward through the saturated soil. Terms describing permeability are:

Very slow	less than 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

Phase, soil. A subdivision of a soil series based on features that affect its use and management. For example, slope, stoniness, and thickness.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Piping (in tables). Subsurface tunnels or pipelike cavities are formed by water moving through the soil.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Plowpan. A compacted layer formed in the soil directly below the plowed layer.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poorly graded. Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Poor outlets (in tables). In these areas, surface or subsurface drainage outlets are difficult or expensive to install.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Reaction, soil. A measure of the acidity or alkalinity of a soil expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degree of acidity or alkalinity is expressed as—

	pH
Extremely acid	below 4.5
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Medium acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Mildly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Regolith. The unconsolidated mantle of weathered rock and soil material on the earth's surface; the loose earth material above the solid rock.

Relief. The elevations or inequalities of a land surface, considered collectively.

Rill. A steep sided channel resulting from accelerated erosion. A rill is generally a few inches deep and not wide enough to be an obstacle to farm machinery.

Rippable. Rippable bedrock or hardpan can be excavated using a single-tooth ripping attachment mounted on a tractor with a 200-300 draw bar horsepower rating.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Rooting depth (in tables). There is a shallow root zone. The soil is shallow over a layer that greatly restricts roots.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sandstone. Sedimentary rock containing dominantly sand-size particles.

Sedimentary rock. Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

Seepage (in tables). The movement of water through the soil adversely affects the specified use.

Sequum. A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer or of the underlying material. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shale. Sedimentary rock formed by the hardening of a clay deposit.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

Shrink-swell. The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Silica. A combination of silicon and oxygen. The mineral form is called quartz.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Siltstone. Sedimentary rock made up of dominantly silt-sized particles.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75 feet.

Slickensides. Polished and grooved surfaces produced by one mass sliding past another. In soils, slickensides may occur at the bases of slip surfaces on the steeper slopes; on faces of blocks, prisms, and columns; and in swelling clayey soils, where there is marked change in moisture content.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance.

Slope (in tables). Slope is great enough that special practices are required to ensure satisfactory performance of the soil for a specific use.

Slow intake (in tables). The slow movement of water into the soil.

Slow refill (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

Small stones (in tables). Rock fragments less than 3 inches (7.5 centimeters) in diameter. Small stones adversely affect the specified use of the soil.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes of

separates recognized in the United States are as follows:

	Millimeters
Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the underlying material. The living roots and plant and animal activities are largely confined to the solum.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter.

Stony. Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Stripcropping. Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to wind and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Stubble mulch. Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling. Breaking up a compact subsoil by pulling a special chisel through the soil.

Substratum. The part of the soil below the solum.

Subsurface layer. Technically, the A2 horizon. Generally refers to a leached horizon lighter in color and lower in organic matter content than the overlying surface layer.

Summer fallow. The tillage of uncropped land during the summer to control weeds and allow storage of moisture in the soil for the growth of a later crop. A practice common in semiarid regions, where annual precipitation is not enough to produce a crop every year. Summer fallow is frequently practiced before planting winter grain.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

Terrace. An embankment, or ridge, constructed on the contour or at a slight angle to the contour across sloping soils. The terrace intercepts surface runoff, so that water soaks into the soil or flows slowly to a prepared outlet.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Thin layer (in tables). Otherwise suitable soil material is too thin for the specified use.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toe slope. The outermost inclined surface at the base of a hill; part of a foot slope.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Trace elements. Chemical elements, such as zinc, cobalt, manganese, copper, and iron, are in soils in extremely small amounts. They are essential to plant growth.

Upland (geology). Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Weathering. All physical and chemical changes produced by atmospheric agents in rocks or other deposits at or near the earth's surface. These changes result in disintegration and decomposition of the material.

Well graded. Refers to soil material consisting of course grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. This contrasts with poorly graded soil.

Tables

TABLE 1.--TEMPERATURE AND PRECIPITATION

[Based on data recorded in the period 1951-81 at Pelahatchie, Mississippi]

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average daily	2 years in 10 will have-- Maximum temperature higher than--	2 years in 10 will have-- Minimum temperature lower than--	Average number of growing degree days*	Average	2 years in 10 will have-- Less than--	2 years in 10 will have-- More than--	Average number of days with 0.10 inch or more	Average snowfall
	^oF	^oF	^oF	^oF	^oF	Units	In	In	In		In
January----	56.6	33.5	45.1	78	7	84	5.44	2.82	7.72	8	.0
February---	62.0	36.4	49.2	82	13	124	4.83	2.80	6.64	7	.0
March------	69.8	43.3	56.6	87	21	260	6.09	3.24	8.58	7	.2
April------	78.5	52.1	65.3	89	33	459	5.41	2.37	7.98	6	.0
May--------	84.1	58.9	71.5	94	39	667	4.83	1.95	7.25	7	.0
June-------	90.0	65.4	77.7	98	49	831	3.34	1.73	4.74	6	.0
July-------	92.3	68.7	80.5	99	58	946	5.67	3.63	7.51	7	.0
August-----	91.6	67.8	79.7	99	56	921	3.60	1.69	5.24	6	.0
September--	87.3	63.2	75.3	98	43	759	3.56	1.16	5.52	5	.0
October----	79.3	50.3	64.8	92	30	459	2.72	.71	4.33	4	.0
November---	68.5	41.9	55.2	84	18	192	4.20	1.97	6.11	6	.0
December---	60.9	36.4	48.7	80	12	100	5.74	3.25	7.93	7	.0
Yearly:											
Average--	76.7	51.5	64.1	---	---	---	---	---	---	---	---
Extreme--	---	---	---	101	7	---	---	---	---	---	---
Total----	---	---	---	---	---	5,802	55.43	45.98	65.01	76	.2

* A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (50 ^oF).

TABLE 2.--FREEZE DATES IN SPRING AND FALL

[Based on data recorded in the period 1951-81 at Pelahatchie, Mississippi]

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	March 18	March 27	April 10
2 years in 10 later than--	March 11	March 21	April 5
5 years in 10 later than--	February 26	March 10	March 27
First freezing temperature in fall:			
1 year in 10 earlier than--	November 7	October 29	October 18
2 years in 10 earlier than--	November 13	November 4	October 23
5 years in 10 earlier than--	November 26	November 13	October 31

TABLE 3.--GROWING SEASON

[Based on data recorded in the period 1951-81 at Pelahatchie, Mississippi]

Probability	Daily minimum temperature during growing season		
	Higher than 24 °F	Higher than 28 °F	Higher than 32 °F
	Days	Days	Days
9 years in 10	244	221	201
8 years in 10	254	230	207
5 years in 10	273	247	217
2 years in 10	292	265	228
1 year in 10	302	274	234

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS

Map symbol	Soil name	Acres	Percent
2	Cascilla-Arkabutla association, frequently flooded	20,889	4.1
3	Oaklimeter silt loam, occasionally flooded	15,336	3.0
5	Gillsburg silt loam, occasionally flooded	10,572	2.1
6	Oaklimeter-Gillsburg association, frequently flooded	6,800	1.3
7	Kirkville fine sandy loam, occasionally flooded	14,930	2.9
8	Urbo silty clay loam, occasionally flooded	8,488	1.7
9	Urbo-Arkabutla association, frequently flooded	14,176	2.8
12A	Cahaba fine sandy loam, 0 to 2 percent slopes	796	0.2
17	Tippo-Urban land complex, 0 to 2 percent slopes	3,147	0.6
21A	Leverett silt loam, 0 to 2 percent slopes	2,365	0.5
22A	Tippo silt loam, 0 to 2 percent slopes, occasionally flooded	9,402	1.8
23	Guyton silt loam, occasionally flooded	2,824	0.6
25A	Quitman loam, 0 to 2 percent slopes	16,806	3.3
25B	Quitman loam, 2 to 5 percent slopes	2,157	0.4
35B2	Tippah silt loam, 2 to 5 percent slopes, eroded	10,298	2.0
35C2	Tippah silt loam, 5 to 8 percent slopes, eroded	13,984	2.7
35D2	Tippah silt loam, 8 to 12 percent slopes, eroded	3,004	0.6
36B	Kipling-Urban land complex, 2 to 8 percent slopes	5,693	1.1
38	Pits-Udorthents complex	1,439	0.3
41B2	Providence silt loam, 2 to 5 percent slopes, eroded	24,919	4.9
41C2	Providence silt loam, 5 to 8 percent slopes, eroded	20,450	4.0
42B	Providence-Urban land complex, 2 to 8 percent slopes	5,851	1.1
48C2	Ora fine sandy loam, 5 to 8 percent slopes, eroded	2,736	0.5
48D2	Ora fine sandy loam, 8 to 12 percent slopes, eroded	541	0.1
49B2	Savannah loam, 2 to 5 percent slopes, eroded	19,208	3.7
49C2	Savannah loam, 5 to 8 percent slopes, eroded	20,833	4.1
50B	Savannah-Quitman association, undulating	22,117	4.3
51B	Falkner silt loam, 2 to 5 percent slopes	8,370	1.6
55A	Kipling silt loam, 0 to 2 percent slopes	954	0.2
55B	Kipling silt loam, 2 to 5 percent slopes	19,394	3.8
55C2	Kipling silt loam, 5 to 8 percent slopes, eroded	8,759	1.7
56A	Pelahatchie silt loam, 0 to 2 percent slopes	728	0.1
56B	Pelahatchie silt loam, 2 to 5 percent slopes	3,738	0.7
62F	Smithdale-Providence-Kisatchie association, hilly	5,502	1.1
64F	Smithdale-Providence association, hilly	47,980	9.4
65D	Smithdale-Providence complex, 8 to 17 percent slopes	40,372	7.9
66B	Providence-Tippah association, undulating	17,418	3.4
67B	Kipling-Falkner association, undulating	36,240	7.1
68D2	Smithdale fine sandy loam, 8 to 17 percent slopes, eroded	18,088	3.5
70F	Maben-Smithdale association, hilly	6,050	1.2
	Water less than 40 acres	3,646	0.7
	Water more than 40 acres	15,000	2.9
	Total	512,000	100.0

TABLE 5.--PRIME FARMLAND

[Only the soils considered prime farmland are listed. Urban or built-up areas of the soils listed are not considered prime farmland. If a soil is prime farmland only under certain conditions, the conditions are specified in parentheses after the soil name. Soils that are shown as flooded are subject to flooding for brief periods during the winter and early in the spring before crops are planted]

Map symbol	Soil name
3	Oaklimeter silt loam, occasionally flooded
5	Gillsburg silt loam, occasionally flooded
7	Kirkville fine sandy loam, occasionally flooded
8	Urbo silty clay loam, occasionally flooded
12A	Cahaba fine sandy loam, 0 to 2 percent slopes
21A	Leverett silt loam, 0 to 2 percent slopes
22A	Tippo silt loam, 0 to 2 percent slopes, occasionally flooded
23	Guyton silt loam, occasionally flooded (where drained)
25A	Quitman loam, 0 to 2 percent slopes
25B	Quitman loam, 2 to 5 percent slopes
35B2	Tippah silt loam, 2 to 5 percent slopes, eroded
41B2	Providence silt loam, 2 to 5 percent slopes, eroded
49B2	Savannah loam, 2 to 5 percent slopes, eroded
51B	Falkner silt loam, 2 to 5 percent slopes
55A	Kipling silt loam, 0 to 2 percent slopes
55B	Kipling silt loam, 2 to 5 percent slopes
56A	Pelahatchie silt loam, 0 to 2 percent slopes
56B	Pelahatchie silt loam, 2 to 5 percent slopes

TABLE 6.--LAND CAPABILITY CLASSES AND YIELDS PER ACRE OF CROPS AND PASTURE

[Yields are those that can be expected under a high level of management. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil]

Map symbol and soil name	Land capability	Cotton lint	Corn	Soybeans	Wheat	Common bermudagrass	Improved bermudagrass	Bahiagrass
		Lbs	Bu	Bu	Bu	AUM*	AUM*	AUM*
2**:								
Cascilla	IVw	---	---	---	---	7.0	8.0	---
Arkabutla	IVw	---	70	20	---	6.0	10.0	9.0
3 Oaklimeter	IIw	750	95	40	40	9.0	11.0	---
5 Gillsburg	IIw	650	90	35	35	7.0	10.0	---
6**:								
Oaklimeter	IVw	---	---	35	---	6.0	7.0	---
Gillsburg	IVw	---	---	30	---	6.0	8.0	---
7 Kirkville	IIw	700	95	40	35	8.0	---	10.0
8 Urbo	IIw	700	95	35	40	---	12.0	---
9**:								
Urbo	IVw	---	---	---	---	---	7.0	---
Arkabutla	IVw	---	70	20	---	6.0	10.0	9.0
12A Cahaba	I	800	100	35	50	---	10.0	8.5
17** Tippo-Urban land	---	---	---	---	---	---	---	---
21A Leverett	I	800	90	40	40	10.0	12.0	10.0
22A Tippo	IIw	625	80	30	40	6.0	9.0	---
23 Guyton	IVw	---	---	---	---	6.0	---	9.0
25A Quitman	IIw	650	80	30	35	---	10.0	10.0
25B Quitman	IIe	600	75	30	35	---	10.0	10.0
35B2 Tippah	IIe	650	80	35	35	---	10.0	9.0
35C2 Tippah	IIIe	600	70	30	30	---	9.0	8.5
35D2 Tippah	IVe	500	60	25	---	---	8.5	8.0

See footnotes at end of table.

TABLE 6.--LAND CAPABILITY CLASSES AND YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Map symbol and soil name	Land capability	Cotton lint	Corn	Soybeans	Wheat	Common bermudagrass	Improved bermudagrass	Bahiagrass
		Lbs	Bu	Bu	Bu	AUM*	AUM*	AUM*
36B**: Kipling-Urban land	---	---	---	---	---	---	---	---
38**: Pits-Udorthents	---	---	---	---	---	---	---	---
41B2: Providence	IIe	700	80	35	40	---	9.5	8.5
41C2: Providence	IIIe	650	70	30	35	---	9.0	8.0
42B**: Providence-Urban land	---	---	---	---	---	---	---	---
48C2: Ora	IIIe	600	70	30	35	---	8.0	8.5
48D2: Ora	IVe	---	---	---	---	---	7.0	8.0
49B2: Savannah	IIe	650	75	35	40	---	8.5	9.0
49C2: Savannah	IIIe	600	70	30	35	---	8.0	9.0
50B**:								
Savannah	IIIe	600	70	30	35	---	8.0	9.0
Quitman	IIe	600	75	30	35	---	10.0	10.0
51B: Falkner	IIIe	600	70	30	35	---	9.0	8.5
55A: Kipling	IIIw	550	---	30	35	---	8.5	7.0
55B: Kipling	IIIe	550	---	25	35	---	8.5	7.0
55C2: Kipling	IVe	500	---	20	30	---	8.0	6.5
56A: Pelahatchie	IIw	700	---	35	40	7.0	9.0	8.0
56B: Pelahatchie	IIe	650	---	35	40	7.0	9.0	8.0
62F**:								
Smithdale	VIIe	---	---	---	---	---	---	---
Providence	VIe	---	---	---	---	---	8.5	8.0
Kisatchie	VIe	---	---	---	---	---	---	---
64F**:								
Smithdale	VIIe	---	---	---	---	---	---	---

See footnotes at end of table.

TABLE 6.--LAND CAPABILITY CLASSES AND YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Map symbol and soil name	Land capability	Cotton lint	Corn	Soybeans	Wheat	Common bermudagrass	Improved bermudagrass	Bahiagrass
		Lbs	Bu	Bu	Bu	AUM*	AUM*	AUM*
64F**:								
Providence	VIe	---	---	---	---	---	8.5	8.0
65D:								
Smithdale	VIe	---	---	---	---	---	8.0	7.5
Providence	VIe	---	---	---	---	---	8.5	8.0
66B**:								
Providence	IIIe	675	80	35	35	---	9.0	8.0
Tippah	IIIe	600	70	30	30	---	9.0	8.5
67B**:								
Kipling	IVe	500	---	20	30	---	8.0	6.5
Falkner	IVe	550	65	25	30	---	8.0	8.0
68D2 Smithdale	VIe	---	---	---	---	4.5	9.0	8.0
70F**:								
Maben	VIIe	---	---	---	---	---	---	---
Smithdale	VIIe	---	---	---	---	---	---	---

* Animal-unit-month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

** See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 7.--CAPABILITY CLASSES AND SUBCLASSES

[Miscellaneous areas are excluded. Absence of an entry indicates no acreage]

Class	Total acreage	Major management concerns (Subclass)			
		Erosion (e)	Wetness (w)	Soil problem (s)	Climate (c)
		Acres	Acres	Acres	Acres
I	3,161	---	---	---	---
II	144,995	67,066	77,929	---	---
III	122,499	121,545	954	---	---
IV	96,418	51,731	44,687	---	---
V	---	---	---	---	---
VI	41,796	41,796	---	---	---
VII	40,946	40,946	---	---	---
VIII	---	---	---	---	---

TABLE 8.--WOODLAND MANAGEMENT AND PRODUCTIVITY

[Only the soils suitable for production of commercial trees are listed. Absence of an entry indicates that information was not available]

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Management concerns: Windthrow hazard	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Productivity class*	Trees to plant
2**:										
Cascilla	14W	Slight	Moderate	Moderate	Slight	Moderate	Cherrybark oak	112	14	Cherrybark oak, eastern cottonwood, loblolly pine, Nuttall oak, sweetgum, American sycamore, yellow-poplar.
							Eastern cottonwood	110	11	
							Loblolly pine	93	10	
							Nuttall oak	114	8	
							Water oak	104	7	
							Sweetgum	102	10	
							Yellow-poplar	115	9	
Arkabutla	12W	Slight	Severe	Moderate	Slight	Moderate	Cherrybark oak	105	12	Cherrybark oak, eastern cottonwood, green ash, loblolly pine, sweetgum, American sycamore.
							Eastern cottonwood	110	11	
							Green ash	95	4	
							Loblolly pine	100	11	
							Nuttall oak	110	8	
							Sweetgum	100	10	
							Water oak	100	7	
3: Oaklimeter	10W	Slight	Moderate	Moderate	Slight	Moderate	Cherrybark oak	100	10	Cherrybark oak, eastern cottonwood, loblolly pine, Nuttall oak, sweetgum, water oak, yellow-poplar.
							Eastern cottonwood	100	9	
							Green ash	90	4	
							Loblolly pine	90	9	
							Nuttall oak	100	7	
							Willow oak	100	7	
							Sweetgum	100	10	
5: Gillsburg	10W	Slight	Moderate	Moderate	Slight	Moderate	Cherrybark oak	100	10	Eastern cottonwood, loblolly pine, sweetgum, American sycamore, yellow-poplar.
							Eastern cottonwood	105	10	
							Green ash	85	4	
							Loblolly pine	90	9	
							Sweetgum	90	7	
							American sycamore	105	10	
							Water oak	95	6	
							Yellow-poplar	105	8	

See footnotes at end of table.

TABLE 8.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Map symbol and soil name	Ordination symbol	Management concerns					Potential productivity			Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	Productivity class*	
6**:										
Oaklimeter------	10W	Slight	Moderate	Moderate	Slight	Moderate	Cherrybark oak------	100	10	Cherrybark oak, eastern cottonwood, loblolly pine, Nuttall oak, sweetgum, water oak, yellow-poplar.
							Eastern cottonwood--	100	9	
							Green ash-----------	90	4	
							Loblolly pine-------	90	9	
							Nuttall oak---------	100	7	
							Willow oak----------	100	7	
							Sweetgum------------	100	10	
Gillsburg-------	10W	Slight	Severe	Moderate	Slight	Moderate	Cherrybark oak------	100	10	Eastern cottonwood, loblolly pine, sweetgum, American sycamore, yellow-poplar.
							Eastern cottonwood--	105	10	
							Green ash-----------	85	4	
							Loblolly pine-------	90	9	
							Sweetgum------------	90	7	
							American sycamore---	105	10	
							Water oak-----------	95	6	
							Yellow-poplar-------	105	8	
7---------------- Kirkville	10W	Slight	Moderate	Moderate	Slight	Moderate	Cherrybark oak------	100	10	Cherrybark oak, eastern cottonwood, loblolly pine, sweetgum, yellow-poplar.
							Loblolly pine-------	95	10	
							Sweetgum------------	100	10	
							Water oak-----------	100	7	
8---------------- Urbo	11W	Slight	Moderate	Slight	Moderate	Moderate	Eastern cottonwood--	108	11	Eastern cottonwood, loblolly pine, sweetgum, American sycamore, yellow-poplar.
							Cherrybark oak------	99	10	
							Sweetgum------------	98	9	
							Green ash-----------	93	4	
9**:										
Urbo------------	11W	Slight	Severe	Moderate	Moderate	Moderate	Eastern cottonwood--	93	11	Eastern cottonwood, loblolly pine, sweetgum, American sycamore, yellow-poplar.
							Cherrybark oak------	108	10	
							Sweetgum------------	99	9	
							Green ash-----------	98	4	

See footnotes at end of table.

TABLE 8.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Map symbol and soil name	Ordination symbol	Management concerns					Potential productivity			Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	Productivity class*	
9**: Arkabutla	12W	Slight	Severe	Moderate	Slight	Moderate	Cherrybark oak	105	12	Cherrybark oak, eastern cottonwood, green ash, loblolly pine, sweetgum, American sycamore.
							Eastern cottonwood	110	11	
							Green ash	95	4	
							Loblolly pine	100	11	
							Nuttall oak	110	8	
							Sweetgum	100	10	
							Water oak	100	7	
12A: Cahaba	9A	Slight	Slight	Slight	Slight	Moderate	Loblolly pine	87	9	Loblolly pine, yellow-poplar, sweetgum.
							Yellow-poplar	---	--	
							Sweetgum	90	7	
21A: Leverett	8A	Slight	Slight	Slight	Slight	Slight	Loblolly pine	85	8	Loblolly pine, cherrybark oak, sweetgum, yellow-poplar.
							Cherrybark oak	85	7	
							Sweetgum	85	6	
22A: Tippo	6W	Slight	Moderate	Slight	Slight	Moderate	Cherrybark oak	80	6	Cherrybark oak, green ash, loblolly pine, sweetgum, yellow-poplar.
							Loblolly pine	90	9	
							Sweetgum	90	7	
23: Guyton	9W	Slight	Severe	Moderate	Slight	Moderate	Loblolly pine	90	9	Loblolly pine, sweetgum.
							Sweetgum	---	--	
							Green ash	---	--	
							Southern red oak	---	--	
							Water oak	---	--	
25A, 25B: Quitman	10W	Slight	Moderate	Slight	Slight	Slight	Loblolly pine	92	10	Loblolly pine, sweetgum, American sycamore, yellow-poplar.
							Sweetgum	93	8	
							Water oak	90	6	

See footnotes at end of table.

TABLE 8.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Map symbol and soil name	Ordination symbol	Management concerns					Potential productivity			Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	Productivity class*	
35B2, 35C2, 35D2 Tippah	9A	Slight	Slight	Slight	Slight	Moderate	Cherrybark oak	95	9	Cherrybark oak, Shumard oak, loblolly pine, sweetgum, yellow-poplar.
							Shumard oak	95	6	
							White oak	80	5	
							Loblolly pine	78	8	
							Sweetgum	90	7	
							Yellow-poplar	90	6	
41B2, 41C2 Providence	8D	Slight	Slight	Slight	Moderate	Slight	Loblolly pine	84	8	Loblolly pine, Shumard oak, sweetgum, yellow-poplar.
							Shortleaf pine	64	7	
							Sweetgum	90	7	
48C2, 48D2 Ora	8A	Slight	Slight	Slight	Slight	Moderate	Loblolly pine	83	8	Loblolly pine.
							Shortleaf pine	69	8	
							Sweetgum	80	6	
49B2, 49C2 Savannah	8A	Slight	Slight	Slight	Moderate	Moderate	Loblolly pine	81	8	Loblolly pine.
							Shortleaf pine	76	8	
							Southern red oak	75	4	
50B**:										
Savannah	8A	Slight	Slight	Slight	Moderate	Moderate	Loblolly pine	81	8	Loblolly pine.
							Shortleaf pine	76	8	
							Southern red oak	75	4	
Quitman	10W	Slight	Moderate	Slight	Slight	Slight	Loblolly pine	92	10	Loblolly pine, sweetgum, American sycamore, yellow-poplar.
							Sweetgum	93	8	
							Water oak	90	6	
51B Falkner	8W	Slight	Moderate	Slight	Slight	Moderate	Loblolly pine	85	8	Cherrybark oak, loblolly pine, shortleaf pine, sweetgum.
							Shortleaf pine	75	8	
							Sweetgum	90	7	
55A, 55B, 55C2 Kipling	8C	Slight	Moderate	Moderate	Slight	Moderate	Cherrybark oak	90	8	Cherrybark oak, loblolly pine, Shumard oak, sweetgum.
							Loblolly pine	90	9	
							Shumard oak	85	6	
							Sweetgum	90	7	
							Water oak	80	5	
							White oak	80	5	

See footnotes at end of table.

TABLE 8.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Map symbol and soil name	Ordination symbol	Management concerns					Potential productivity			Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	Productivity class*	
56A, 56B--------- Pelahatchie	9C	Slight	Moderate	Slight	Slight	Moderate	Loblolly pine------- Cherrybark oak------ Shumard oak--------- Sweetgum------------ Water oak----------- White oak-----------	90 90 85 90 80 80	9 8 6 7 5 6	Loblolly pine, cherrybark oak, Shumard oak, sweetgum.
62F**:										
Smithdale-------	8R	Moderate	Moderate	Slight	Slight	Slight	Loblolly pine------- Shortleaf pine------	80 69	8 8	Loblolly pine.
Providence------	8D	Slight	Slight	Slight	Moderate	Slight	Loblolly pine------- Shortleaf pine------ Sweetgum------------	84 64 90	8 7 7	Loblolly pine, Shumard oak, sweetgum, yellow-poplar.
Kisatchie-------	6D	Moderate	Moderate	Moderate	Moderate	Moderate	Loblolly pine------- Shortleaf pine------	65 55	6 5	Loblolly pine.
64F**:										
Smithdale-------	8R	Moderate	Moderate	Slight	Slight	Slight	Loblolly pine------- Shortleaf pine------	80 69	8 8	Loblolly pine.
Providence------	8D	Slight	Slight	Slight	Moderate	Slight	Loblolly pine------- Shortleaf pine------ Sweetgum------------	84 64 90	8 7 7	Loblolly pine, Shumard oak, sweetgum, yellow-poplar.
65D**:										
Smithdale-------	8A	Slight	Slight	Slight	Slight	Slight	Loblolly pine------- Shortleaf pine------	80 69	8 8	Loblolly pine.
Providence------	8D	Slight	Slight	Slight	Moderate	Slight	Loblolly pine------- Shortleaf pine------ Sweetgum------------	84 64 90	8 7 7	Loblolly pine, Shumard oak, sweetgum, yellow-poplar.

See footnotes at end of table.

TABLE 8.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Map symbol and soil name	Ordi-nation symbol	Management concerns					Potential productivity			Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competi-tion	Common trees	Site index	Produc-tivity class*	
66B**:										
Providence	8D	Slight	Slight	Slight	Moderate	Slight	Loblolly pine	84	8	Loblolly pine, Shumard oak, sweetgum, yellow-poplar.
							Shortleaf pine	64	7	
							Sweetgum	90	7	
Tippah	9A	Slight	Slight	Slight	Slight	Moderate	Cherrybark oak	95	9	Cherrybark oak, Shumard oak, loblolly pine, sweetgum, yellow-poplar.
							Shumard oak	95	6	
							White oak	80	5	
							Loblolly pine	78	8	
							Sweetgum	90	7	
							Yellow-poplar	90	6	
67B**:										
Kipling	9C	Slight	Moderate	Moderate	Slight	Moderate	Loblolly pine	90	9	Loblolly pine, cherrybark oak, Shumard oak, sweetgum.
							Cherrybark oak	90	8	
							Shumard oak	85	6	
							Sweetgum	90	7	
							Water oak	80	5	
							White oak	80	5	
Falkner	8W	Slight	Moderate	Slight	Slight	Moderate	Loblolly pine	85	8	Cherrybark oak, loblolly pine, shortleaf pine, sweetgum.
							Shortleaf pine	75	8	
							Sweetgum	90	7	
68D2 Smithdale	8A	Slight	Slight	Slight	Slight	Slight	Loblolly pine	80	8	Loblolly pine.
							Shortleaf pine	69	8	
70F**:										
Maben	8C	Slight	Moderate	Moderate	Moderate	Slight	Loblolly pine	83	8	Loblolly pine, shortleaf pine.
							Shortleaf pine	73	8	
Smithdale	8R	Moderate	Moderate	Slight	Slight	Slight	Loblolly pine	80	8	Loblolly pine.
							Shortleaf pine	69	8	

* Productivity class is the yield in cubic meters per hectare per year calculated at the age of culmination of mean annual increment for fully stocked natural stands.

** See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 9.--WOODLAND UNDERSTORY VEGETATION

[Only the soils suitable for production of commercial trees are listed]

Map symbol and soil name	Total production: Kind of year	Total production: Dry weight	Characteristic vegetation	Composition
		Lb/acre		Pct
2*:				
Cascilla	Normal	1,600	Beaked panicum	25
			Pinehill bluestem	31
			Longleaf uniola	19
Arkabutla	Normal	1,500	Pinehill bluestem	33
			Switchcane	27
			Longleaf uniola	20
3 Oaklimeter	Normal	1,600	Beaked panicum	25
			Pinehill bluestem	31
			Switchcane	19
			Longleaf uniola	19
5 Gillsburg	Normal	1,500	Switchcane	27
			Pinehill bluestem	33
			Beaked panicum	7
			Longleaf uniola	20
6*:				
Oaklimeter	Normal	1,600	Beaked panicum	25
			Pinehill bluestem	31
			Switchcane	19
			Longleaf uniola	19
Gillsburg	Normal	1,500	Switchcane	27
			Pinehill bluestem	33
			Beaked panicum	7
			Longleaf uniola	20
7 Kirkville	Normal	1,600	Carpetgrass	31
			Longleaf uniola	38
			Pinehill bluestem	25
8 Urbo	Normal	1,600	Longleaf uniola	38
			Carpetgrass	31
			Pinehill bluestem	25
9*:				
Urbo	Normal	1,600	Longleaf uniola	38
			Carpetgrass	31
			Pinehill bluestem	25
Arkabutla	Normal	1,500	Pinehill bluestem	33
			Switchcane	27
			Longleaf uniola	19
12A Cahaba	Normal	1,350	Pinehill bluestem	40
			Longleaf uniola	30
			Beaked panicum	10
22A Tippo	Normal	1,500	Pinehill bluestem	33
			Longleaf uniola	20
			Switchcane	27

See footnotes at end of table.

TABLE 9.--WOODLAND UNDERSTORY VEGETATION--Continued

Map symbol and soil name	Total production		Characteristic vegetation	Composition
	Kind of year	Dry weight		
		Lb/acre		Pct
23 Guyton	Normal	2,000	Pinehill bluestem	20
			Longleaf uniola	35
			Silver plumegrass	10
25A, 25B Quitman	Normal	1,800	Longleaf uniola	13
			Pinehill bluestem	21
			Cutover muhly	11
35B2, 35C2, 35D2 Tippah	Normal	1,600	Longleaf uniola	19
			Beaked panicum	31
			Pinehill bluestem	25
41B2, 41C2 Providence	Normal	1,600	Beaked panicum	31
			Pinehill bluestem	25
			Longleaf uniola	19
			Switchcane	19
48C2, 48D2 Ora	Normal	1,400	Longleaf uniola	36
			Pinehill bluestem	21
			Beaked panicum	21
49B2, 49C2 Savannah	Normal	1,400	Longleaf uniola	36
			Pinehill bluestem	21
			Beaked panicum	21
			Panicum	14
50B*:				
Savannah	Normal	1,400	Longleaf uniola	36
			Pinehill bluestem	21
			Beaked panicum	21
			Panicum	14
Quitman	Normal	1,800	Longleaf uniola	13
			Pinehill bluestem	21
			Cutover muhly	11
51B Falkner	Normal	1,500	Pinehill bluestem	33
			Switchcane	27
			Longleaf uniola	20
55A, 55B, 55C2 Kipling	Normal	1,000	Pinehill bluestem	40
			Common carpetgrass	20
			Panicum	15
56A, 56B Pelahatchie	Normal	1,000	Pinehill bluestem	40
			Common carpetgrass	20
			Panicum	15
62F*:				
Smithdale	Normal	950	Longleaf uniola	42
			Pinehill bluestem	21
			Beaked panicum	21
			Panicum	11
Providence	Normal	1,600	Beaked panicum	31
			Pinehill bluestem	25
			Longleaf uniola	19
			Switchcane	19
Kisatchie**.				

See footnotes at end of table.

TABLE 9.--WOODLAND UNDERSTORY VEGETATION--Continued

Map symbol and soil name	Total production: Kind of year	Total production: Dry weight	Characteristic vegetation	Composition
		Lb/acre		Pct
64F*, 65D*:				
Smithdale	Normal	950	Longleaf uniola	42
			Pinehill bluestem	21
			Beaked panicum	21
			Panicum	11
Providence	Normal	1,600	Beaked panicum	31
			Pinehill bluestem	25
			Longleaf uniola	19
			Switchcane	19
66B*:				
Providence	Normal	1,600	Beaked panicum	31
			Pinehill bluestem	25
			Longleaf uniola	19
			Switchcane	19
Tippah	Normal	1,600	Longleaf uniola	19
			Beaked panicum	31
			Pinehill bluestem	25
67B*:				
Kipling	Normal	1,000	Pinehill bluestem	40
			Common carpetgrass	20
			Panicum	15
Falkner	Normal	1,500	Pinehill bluestem	33
			Switchcane	27
			Longleaf uniola	20
68D2 Smithdale	Normal	950	Longleaf uniola	42
			Pinehill bluestem	21
			Beaked panicum	21
			Panicum	11
70F*:				
Maben	Normal	800	Pinehill bluestem	25
			Panicum	25
			Beaked panicum	31
Smithdale	Normal	950	Longleaf uniola	42
			Pinehill bluestem	21
			Beaked panicum	21
			Panicum	11

* See description of the map unit for composition and behavior characteristics of the map unit.
** Information not available for production and vegetation.

TABLE 10.--SUITABILITY OF SOILS FOR SPECIFIED HORTICULTURAL PLANTS*

Map symbol and soil name	Grasses: Common bermuda-grass	Grasses: St. Augus-tine	Grasses: Centi-pide-grass	Vegetables: Toma-toes	Vegetables: Corn	Vegetables: Pota-toes	Vegetables: Cab-bage	Vegetables: Okra	Vegetables: Snap-beans	Vegetables: Lima beans	Vegetables: Cow-peas	Vegetables: Squash	Vegetables: Peanuts	Fruits and Nuts**: Blue-berries	Fruits and Nuts**: Plums	Fruits and Nuts**: Pears	Fruits and Nuts**: Pecans	Fruits and Nuts**: Musca-dine grape	Fruits and Nuts**: Bunch grape	Ornamentals: Crape-myrtle	Ornamentals: Holly	Ornamentals: Honey-suckle	Ornamentals: Pyr-acantha	Ornamentals: Yaupon	Ornamentals: Azaleas	Ornamentals: Camel-lias	Ornamentals: Roses
2***:																											
Cascilla-----	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	3	3	2	2	3	2	3	3	3
Arkabutla----	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	3	2	3	3	3
3------------- Oaklimeter	1	1	2	2	1	3	3	1	2	2	1	2	3	3	2	3	2	2	3	2	1	1	2	2	2	3	3
5------------- Gillsburg	1	2	2	2	1	3	3	1	2	2	1	2	3	3	3	3	2	3	3	3	1	1	3	2	3	3	3
6***:																											
Oaklimeter---	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	2	3	3	2	1	2	2	3	3	3
Gillsburg----	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	2	3	3	3	3	3
7------------- Kirkville	1	1	2	2	1	3	3	1	2	2	1	2	3	3	2	3	2	2	3	2	1	1	3	2	3	3	3
8------------- Urbo	1	3	3	3	1	3	3	1	2	2	2	3	3	3	3	3	3	3	3	3	3	1	3	3	3	3	3
9***:																											
Urbo---------	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	3	3	3	3	3
Arkabutla----	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	3	3	3	3	3
12A----------- Cahaba	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
17***:																											
Tippo--------	1	2	2	2	1	3	3	1	2	2	1	2	3	3	3	3	2	3	3	2	1	1	3	2	3	3	3
Urban land.																											
21A----------- Leverett	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
22A----------- Tippo	1	2	2	2	1	3	3	1	2	2	2	2	3	3	3	3	2	3	3	2	1	1	3	2	3	3	3
23------------ Guyton	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	3	3	3	3	3
25A, 25B------ Quitman	1	2	2	2	2	3	3	2	2	2	2	2	3	3	3	3	2	3	3	2	1	1	3	2	3	3	3
35B2---------- Tippah	1	1	1	1	1	2	1	1	1	1	1	1	2	2	2	2	2	2	2	1	1	1	1	1	1	1	2
35C2---------- Tippah	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	2

See footnotes at end of table.

TABLE 10.--SUITABILITY OF SOILS FOR SPECIFIED HORTICULTURAL PLANTS--Continued

Map symbol and soil name	Grasses			Vegetables										Fruits and Nuts**						Ornamentals							
	Common bermuda-grass	St. Augus-tine	Centi-pide-grass	Toma-toes	Corn	Pota-toes	Cab-bage	Okra	Snap-beans	Lima beans	Cow-peas	Squash	Peanuts	Blue-berries	Plums	Pears	Pecans	Musca-dine grape	Bunch grape	Crape-myrtle	Holly	Honey-suckle	Pyr-acantha	Yaupon	Azaleas	Camel-lias	Roses
35D2----------- Tippah	1	2	2	3	3	3	3	3	3	3	3	3	3	2	2	2	2	2	2	1	1	1	1	1	1	1	2
36B***: Kipling------	1	2	2	2	3	3	3	3	3	3	3	3	3	3	3	2	2	2	2	3	2	1	2	2	3	3	3
Urban land.																											
38***: Pits.																											
Udorthents.																											
41B2----------- Providence	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	1	1	1	1	1	1	1	2
41C2----------- Providence	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	2
42B***: Providence---	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	1	1	1	1	1	1	2
Urban land.																											
48B2----------- Ora	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	1	1	1	1	1	1	2
48C2----------- Ora	1	1	1	2	2	2	2	2	2	2	1	1	2	2	2	2	2	2	2	2	1	1	1	1	1	1	2
48D2----------- Ora	1	1	1	3	3	3	3	3	3	3	3	3	3	3	2	2	2	2	2	2	1	1	1	1	1	1	2
49B2----------- Savannah	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	3	1	1	1	1	1	1	2
49C2----------- Savannah	1	1	1	2	2	2	2	2	2	2	1	1	2	2	2	2	2	2	2	2	1	1	1	1	1	1	2
50B***: Savannah-----	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	1	1	1	1	1	1	2
Quitman------	1	1	1	2	1	2	2	1	1	1	1	2	2	2	2	2	2	2	3	2	1	1	2	1	2	3	2
51B------------ Falkner	1	2	2	2	2	2	3	2	2	2	2	2	3	3	3	3	2	2	3	3	2	1	2	2	3	3	3
55A, 55B------ Kipling	2	2	2	3	2	3	3	2	2	2	2	2	3	3	3	3	2	3	3	3	2	1	2	2	3	3	3
55C2----------- Kipling	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2	2	3	3	3

See footnotes at end of table.

TABLE 10.--SUITABILITY OF SOILS FOR SPECIFIED HORTICULTURAL PLANTS--Continued

Map symbol and soil name	Grasses: Common bermuda-grass	Grasses: St. Augus-tine	Grasses: Centi-pede-grass	Vegetables: Toma-toes	Vegetables: Corn	Vegetables: Pota-toes	Vegetables: Cab-bage	Vegetables: Okra	Vegetables: Snap-beans	Vegetables: Lima beans	Vegetables: Cow-peas	Vegetables: Squash	Vegetables: Peanuts	Fruits and Nuts**: Blue-berries	Fruits and Nuts**: Plums	Fruits and Nuts**: Pears	Fruits and Nuts**: Pecans	Fruits and Nuts**: Musca-dine grape	Fruits and Nuts**: Bunch grape	Ornamentals: Crape-myrtle	Ornamentals: Holly	Ornamentals: Honey-suckle	Ornamentals: Pyr-acantha	Ornamentals: Yaupon	Ornamentals: Azaleas	Ornamentals: Camel-lias	Ornamentals: Roses
56A, 56B------ Pelahatchie	1	1	2	2	1	2	2	1	1	1	1	1	3	3	2	2	2	2	3	2	1	1	1	1	3	3	2
62F***:																											
Smithdale----	1	1	1	3	3	3	3	3	3	3	3	3	3	2	2	2	1	1	2	1	1	1	1	1	1	1	2
Providence---	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	2
Kisatchie----	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	3	3	3	3	3
64F***:																											
Smithdale----	1	1	1	3	3	3	3	3	3	3	3	3	3	2	1	1	1	1	2	1	1	1	1	1	1	1	2
Providence---	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	2
65D***:																											
Smithdale----	1	1	1	3	3	3	3	3	3	3	3	3	3	2	1	1	1	1	2	1	1	1	1	1	1	1	2
Providence---	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	2
66B***:																											
Providence---	1	1	1	1	1	2	1	1	1	1	1	1	2	2	2	2	2	2	2	1	1	1	1	1	1	1	2
Tippah-------	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	1	1	1	1	1	1	1	2
67B***:																											
Kipling------	2	2	2	2	3	2	3	3	2	2	2	3	3	3	3	3	2	3	3	3	2	1	2	2	2	2	3
Falkner------	2	2	2	2	3	2	3	3	2	2	2	3	3	3	3	3	2	3	3	3	2	1	2	2	2	2	3
68D----------- Smithdale	1	1	1	3	3	3	3	3	3	3	3	3	3	3	1	1	1	1	2	1	1	1	1	1	1	1	2
70F***:																											
Maben--------	2	2	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2	2	3	2	2	2	2	2	2	2	3
Smithdale----	1	1	1	3	3	3	3	3	3	3	3	3	3	3	1	1	1	1	2	1	1	1	1	1	1	1	2

* The numeral 1 indicates that the soil is well suited to the specified plant.
The numeral 2 indicates that the soil is suited to the specified plant.
The numeral 3 indicates that the soil is poorly suited to the specified plant.
** Recent releases that are resistant to Pierce's disease.
*** See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 11.--RECREATIONAL DEVELOPMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated]

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
2*:					
Cascilla	Severe: flooding.	Moderate: flooding.	Severe: flooding.	Moderate: flooding.	Severe: flooding.
Arkabutla	Severe: flooding, wetness.	Moderate: flooding, wetness.	Severe: flooding, wetness.	Moderate: flooding, wetness.	Severe: flooding, wetness.
3 Oaklimeter	Severe: flooding.	Moderate: wetness.	Moderate: wetness, flooding.	Moderate: wetness.	Moderate: wetness, flooding.
5 Gillsburg	Severe: flooding, wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness, flooding.
6*:					
Oaklimeter	Severe: flooding.	Moderate: flooding, wetness.	Severe: flooding.	Moderate: flooding, wetness.	Severe: flooding.
Gillsburg	Severe: flooding, wetness.	Moderate: flooding, wetness.	Severe: wetness, flooding.	Moderate: flooding, wetness.	Severe: flooding.
7 Kirkville	Severe: flooding.	Moderate: wetness.	Moderate: wetness, flooding.	Moderate: wetness.	Moderate: wetness, flooding.
8 Urbo	Severe: flooding, wetness, percs slowly.	Severe: percs slowly.	Severe: wetness.	Moderate: wetness.	Moderate: wetness, flooding.
9*:					
Urbo	Severe: flooding, wetness, percs slowly.	Severe: percs slowly.	Severe: wetness, flooding.	Moderate: wetness, flooding.	Severe: flooding.
Arkabutla	Severe: flooding, wetness.	Moderate: flooding, wetness.	Severe: flooding, wetness.	Moderate: flooding, wetness.	Severe: flooding, wetness.
12A Cahaba	Severe: flooding.	Slight	Slight	Slight	Slight.
17*:					
Tippo	Severe: flooding.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.
Urban land.					
21A Leverett	Slight	Slight	Slight	Slight	Slight.

See footnote at end of table.

TABLE 11.--RECREATIONAL DEVELOPMENT--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
22A------------------ Tippo	Severe: flooding.	Moderate: wetness.	Moderate: wetness, flooding.	Moderate: wetness.	Moderate: wetness, flooding.
23------------------- Guyton	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, erodes easily.	Severe: wetness.
25A------------------ Quitman	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.
25B------------------ Quitman	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: slope, wetness.	Moderate: wetness.	Moderate: wetness.
35B2----------------- Tippah	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Slight----------	Slight.
35C2----------------- Tippah	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Severe: slope.	Slight----------	Slight.
35D2----------------- Tippah	Moderate: slope, wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Severe: slope.	Severe: erodes easily.	Moderate: slope.
36B*:					
Kipling--------------	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Severe: slope.	Moderate: wetness.	Moderate: wetness.
Urban land.					
38:*					
Pits.					
Udorthents.					
41B2----------------- Providence	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Severe: erodes easily.	Moderate: wetness.
41C2----------------- Providence	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Severe: slope.	Severe: erodes easily.	Moderate: wetness.
42B*:					
Providence-----------	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Severe: slope.	Severe: erodes easily.	Moderate: wetness.
Urban land.					
48C2----------------- Ora	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Severe: slope.	Slight----------	Moderate: droughty.

See footnote at end of table.

TABLE 11.--RECREATIONAL DEVELOPMENT--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
48D2------------------ Ora	Moderate: slope, wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Severe: slope.	Slight----------	Moderate: droughty, slope.
49B2------------------ Savannah	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Moderate: wetness.	Moderate: wetness.
49C2------------------ Savannah	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Severe: slope.	Moderate: wetness.	Moderate: wetness.
50B*:					
Savannah-------------	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Severe: slope.	Moderate: wetness.	Moderate: wetness.
Quitman--------------	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: slope, wetness.	Moderate: wetness.	Moderate: wetness.
51B------------------- Falkner	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Severe: erodes easily.	Moderate: wetness.
55A------------------- Kipling	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness.	Moderate: wetness.
55B------------------- Kipling	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Moderate: wetness.	Moderate: wetness.
55C2------------------ Kipling	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Severe: slope.	Moderate: wetness.	Moderate: wetness.
56A------------------- Pelahatchie	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness.	Moderate: wetness.
56B------------------- Pelahatchie	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Moderate: wetness.	Moderate: wetness.
62F*:					
Smithdale------------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Providence-----------	Moderate: slope, wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Severe: slope.	Severe: erodes easily.	Moderate: wetness, slope.

See footnote at end of table.

TABLE 11.--RECREATIONAL DEVELOPMENT--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
62F*:					
Kisatchie	Severe: slope, percs slowly.	Severe: slope, percs slowly.	Severe: slope, percs slowly.	Severe: slope, erodes easily.	Severe: slope.
64F*:					
Smithdale	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
Providence	Moderate: slope, wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Severe: slope.	Severe: erodes easily.	Moderate: wetness, slope.
65D*:					
Smithdale	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight	Moderate: slope.
Providence	Moderate: slope, wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Severe: slope.	Severe: erodes easily.	Moderate: wetness, slope.
66B*:					
Providence	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Severe: slope.	Severe: erodes easily.	Moderate: wetness.
Tippah	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Severe: slope.	Slight	Slight.
67B*:					
Kipling	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Severe: slope.	Moderate: wetness.	Moderate: wetness.
Falkner	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Severe: slope.	Severe: erodes easily.	Moderate: wetness.
68D2 Smithdale	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight	Moderate: slope.
70F*:					
Maben	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily, slope.	Severe: slope.
Smithdale	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 12.--WILDLIFE HABITAT

[See text for definitions of "good," "fair," "poor," and "very poor." Absence of an entry indicates that the soil was not rated]

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Shrubs	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
2*:											
Cascilla	Poor	Fair	Fair	Good	Good	Good	Poor	Very poor.	Fair	Good	Very poor.
Arkabutla	Poor	Fair	Fair	Good	Good	---	Fair	Fair	Fair	Good	Fair
3 Oaklimeter	Good	Good	Good	Good	Poor	---	Poor	Poor	Good	Good	Poor
5 Gillsburg	Fair	Good	Good	Good	---	---	Fair	Fair	Good	Good	Fair
6*:											
Oaklimeter	Poor	Fair	Good	Good	Poor	---	Poor	Poor	Fair	Good	Poor
Gillsburg	Poor	Fair	Fair	Good	---	---	Fair	Fair	Fair	Good	Fair
7 Kirkville	Good	Good	Good	Good	---	---	Poor	Poor	Good	Good	Poor
8 Urbo	Fair	Good	Fair	Good	---	Good	Good	Good	Fair	Good	Good
9*:											
Urbo	Poor	Fair	Fair	Good	---	Fair	Fair	Fair	Fair	Fair	Fair
Arkabutla	Poor	Fair	Fair	Good	Good	---	Fair	Fair	Fair	Good	Fair
12A Cahaba	Good	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
17*:											
Tippo	Fair	Good	Good	Good	Good	---	Fair	Fair	Good	Good	Fair
Urban land.											
21A Leverett	Good	Good	Good	Good	---	---	Poor	Poor	Good	Good	Poor
22A Tippo	Fair	Good	Good	Good	Good	---	Fair	Fair	Good	Good	Fair
23 Guyton	Fair	Fair	Fair	Fair	---	---	Good	Good	Fair	Fair	Good
25A Quitman	Good	Good	Good	Good	---	Good	Fair	Poor	Good	Good	Poor
25B Quitman	Good	Good	Good	Good	---	Good	Poor	Very poor.	Good	Good	Very poor.
35B2 Tippah	Good	Good	Good	Good	Good	---	Poor	Poor	Good	Good	Poor
35C2, 35D2 Tippah	Fair	Good	Good	Good	Good	---	Very poor.	Very poor.	Good	Good	Very poor.

See footnote at end of table.

TABLE 12.--WILDLIFE HABITAT--Continued

Map symbol and soil name	Potential for habitat elements								Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Shrubs	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
36B*:											
Kipling	Fair	Good	Good	Good	---	---	Very poor.	Very poor.	Good	Good	Very poor.
Urban land.											
38:*											
Pits.											
Udorthents.											
41B2 Providence	Good	Good	Good	Good	Good	---	Poor	Very poor.	Good	Good	Very poor.
41C2 Providence	Fair	Good	Good	Good	Good	---	Poor	Very poor.	Good	Good	Very poor.
42B*:											
Providence	Fair	Good	Good	Good	Good	---	Poor	Very poor.	Good	Good	Very poor.
Urban land.											
48C2, 48D2 Ora	Fair	Good	Good	Good	---	---	Very poor.	Very poor.	Good	Good	Very poor.
49B2 Savannah	Good	Good	Good	Good	Good	---	Poor	Very poor.	Good	Good	Very poor.
49C2 Savannah	Fair	Good	Good	Good	Good	---	Very poor.	Very poor.	Good	Good	Very poor.
50B*:											
Savannah	Fair	Good	Good	Good	Good	---	Very poor.	Very poor.	Good	Good	Very poor.
Quitman	Good	Good	Good	Good	---	Good	Poor	Very poor.	Good	Good	Very poor.
51B Falkner	Good	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
55A Kipling	Fair	Good	Good	Good	---	---	Fair	Fair	Good	Good	Fair
55B Kipling	Fair	Good	Good	Good	---	---	Poor	Fair	Good	Good	Poor
55C2 Kipling	Fair	Good	Good	Good	---	---	Very poor.	Very poor.	Good	Good	Very poor.
56A Pelahatchie	Good	Good	Good	Good	---	---	Poor	Poor	Good	Good	Poor
56B Pelahatchie	Good	Good	Good	Good	---	---	Poor	Poor	Good	Good	Poor
62F*:											
Smithdale	Very poor.	Fair	Good	Good	Good	---	Very poor.	Very poor.	Fair	Good	Very poor.

See footnote at end of table.

TABLE 12.--WILDLIFE HABITAT--Continued

Map symbol and soil name	Potential for habitat elements								Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Shrubs	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
62F*:											
Providence	Fair	Good	Good	Good	Good	---	Poor	Very poor.	Good	Good	Very poor.
Kisatchie	Very poor.	Poor	Fair	---	Fair	---	Very poor.	Very poor.	Poor	Fair	Very poor.
64F*:											
Smithdale	Poor	Fair	Good	Good	Good	---	Very poor.	Very poor.	Fair	Good	Very poor.
Providence	Fair	Good	Good	Good	Good	---	Poor	Very poor.	Good	Good	Very poor.
65D*:											
Smithdale	Fair	Good	Good	Good	Good	---	Very poor.	Very poor.	Good	Good	Very poor.
Providence	Fair	Good	Good	Good	Good	---	Poor	Very poor.	Good	Good	Very poor.
66B*:											
Providence	Fair	Good	Good	Good	Good	---	Poor	Very poor.	Good	Good	Very poor.
Tippah	Fair	Good	Good	Good	Good	---	Very poor.	Very poor.	Good	Good	Very poor.
67B*:											
Kipling	Fair	Good	Good	Good	---	---	Very poor.	Very poor.	Good	Good	Very poor.
Falkner	Good	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
68D2 Smithdale	Fair	Good	Good	Good	Good	---	Very poor.	Very poor.	Good	Good	Very poor.
70F*:											
Maben	Poor	Fair	Fair	Good	Good	---	Very poor.	Very poor.	Fair	Good	Very poor.
Smithdale	Poor	Fair	Good	Good	Good	---	Very poor.	Very poor.	Fair	Good	Very poor.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 13.--BUILDING SITE DEVELOPMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation]

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
2*:						
Cascilla	Moderate: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: low strength, flooding.	Severe: flooding.
Arkabutla	Severe: wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: low strength, flooding.	Severe: flooding, wetness.
3 Oaklimeter	Severe: wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: flooding.	Moderate: wetness, flooding.
5 Gillsburg	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding.	Moderate: wetness, flooding.
6*:						
Oaklimeter	Severe: wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: flooding.	Severe: flooding.
Gillsburg	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding.	Severe: flooding.
7 Kirkville	Severe: wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: flooding.	Moderate: wetness, flooding.
8 Urbo	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, flooding.	Moderate: wetness, flooding.
9*:						
Urbo	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, flooding.	Severe: flooding.
Arkabutla	Severe: wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: low strength, flooding.	Severe: flooding, wetness.
12A Cahaba	Slight	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding.	Slight.
17*:						
Tippo	Severe: wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Moderate: wetness, flooding.	Moderate: wetness.
Urban land.						
21A Leverett	Moderate: wetness.	Slight	Moderate: wetness.	Slight	Slight	Slight.

See footnote at end of table.

TABLE 13.--BUILDING SITE DEVELOPMENT--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
22A Tippo	Severe: wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: flooding.	Moderate: wetness, flooding.
23 Guyton	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, wetness, flooding.	Severe: wetness.
25A, 25B Quitman	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: low strength, wetness.	Moderate: wetness.
35B2 Tippah	Severe: wetness.	Severe: shrink-swell.	Severe: wetness, shrink-swell.	Moderate: wetness, shrink-swell.	Severe: low strength.	Slight.
35C2 Tippah	Severe: wetness.	Severe: shrink-swell.	Severe: wetness, shrink-swell.	Moderate: wetness, shrink-swell, slope.	Severe: low strength.	Slight.
35D2 Tippah	Severe: wetness.	Severe: shrink-swell.	Severe: wetness, shrink-swell.	Severe: slope.	Severe: low strength.	Moderate: slope.
36B*: Kipling	Severe: wetness.	Severe: shrink-swell.	Severe: wetness, shrink-swell.	Severe: shrink-swell.	Severe: low strength, shrink-swell.	Moderate: wetness.
Urban land.						
38*: Pits.						
Udorthents.						
41B2 Providence	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: low strength.	Moderate: wetness.
41C2 Providence	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: wetness.	Moderate: wetness, shrink-swell, slope.	Severe: low strength.	Moderate: wetness.
42B*: Providence	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: wetness.	Moderate: wetness, shrink-swell, slope.	Severe: low strength.	Moderate: wetness.
Urban land.						
48C2 Ora	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness, slope.	Moderate: low strength, wetness.	Moderate: droughty.

See footnote at end of table.

TABLE 13.--BUILDING SITE DEVELOPMENT--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
48D2-------------- Ora	Severe: wetness.	Moderate: wetness, slope.	Severe: wetness.	Severe: slope.	Moderate: low strength, wetness, slope.	Moderate: droughty, slope.
49B2-------------- Savannah	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.
49C2-------------- Savannah	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness, slope.	Moderate: wetness.	Moderate: wetness.
50B*:						
Savannah---------	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness, slope.	Moderate: wetness.	Moderate: wetness.
Quitman----------	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: low strength, wetness.	Moderate: wetness.
51B--------------- Falkner	Severe: wetness.	Severe: shrink-swell.	Severe: wetness, shrink-swell.	Severe: shrink-swell.	Severe: low strength, shrink-swell.	Moderate: wetness.
55A, 55B, 55C2---- Kipling	Severe: wetness.	Severe: shrink-swell.	Severe: wetness, shrink-swell.	Severe: shrink-swell.	Severe: low strength, shrink-swell.	Moderate: wetness.
56A, 56B---------- Pelahatchie	Severe: wetness.	Severe: shrink-swell.	Severe: wetness, shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, low strength.	Moderate: wetness.
62F*:						
Smithdale--------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Providence-------	Severe: wetness.	Moderate: wetness, shrink-swell, slope.	Severe: wetness.	Severe: slope.	Severe: low strength.	Moderate: wetness, slope.
Kisatchie--------	Severe: slope, depth to rock.	Severe: shrink-swell, slope.	Severe: slope, shrink-swell.	Severe: shrink-swell, slope.	Severe: low strength, slope, shrink-swell.	Severe: slope.
64F*:						
Smithdale--------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Providence-------	Severe: wetness.	Moderate: wetness, shrink-swell, slope.	Severe: wetness.	Severe: slope.	Severe: low strength.	Moderate: wetness, slope.
65D*:						
Smithdale--------	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: slope.

See footnote at end of table.

TABLE 13.--BUILDING SITE DEVELOPMENT--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
65D*:						
Providence-------	Severe: wetness.	Moderate: wetness, shrink-swell, slope.	Severe: wetness.	Severe: slope.	Severe: low strength.	Moderate: wetness, slope.
66B*:						
Providence-------	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: wetness.	Moderate: wetness, shrink-swell, slope.	Severe: low strength.	Moderate: wetness.
Tippah-----------	Severe: wetness.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Moderate: wetness, shrink-swell, slope.	Severe: low strength.	Slight.
67B*:						
Kipling----------	Severe: wetness.	Severe: shrink-swell.	Severe: wetness, shrink-swell.	Severe: shrink-swell.	Severe: low strength, shrink-swell.	Moderate: wetness.
Falkner----------	Severe: wetness.	Severe: shrink-swell.	Severe: wetness, shrink-swell.	Severe: shrink-swell.	Severe: low strength, shrink-swell.	Moderate: wetness.
68D2-------------- Smithdale	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: slope.
70F*:						
Maben------------	Severe: slope.	Severe: shrink-swell, slope.	Severe: shrink-swell, slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
Smithdale--------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 14.--SANITARY FACILITIES

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "good," and other terms. Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation]

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
2*:					
Cascilla	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Good.
Arkabutla	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness.
3 Oaklimeter	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Fair: too clayey, wetness.
5 Gillsburg	Severe: flooding, wetness, percs slowly.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.
6*:					
Oaklimeter	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Fair: too clayey, wetness.
Gillsburg	Severe: flooding, wetness, percs slowly.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.
7 Kirkville	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Fair: wetness.
8 Urbo	Severe: flooding, wetness, percs slowly.	Severe: flooding, wetness.	Severe: flooding, wetness, too clayey.	Severe: flooding, wetness.	Poor: too clayey, hard to pack, wetness.
9*:					
Urbo	Severe: flooding, wetness, percs slowly.	Severe: flooding, wetness.	Severe: flooding, wetness, too clayey.	Severe: flooding, wetness.	Poor: too clayey, hard to pack, wetness.
Arkabutla	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness.
12A Cahaba	Moderate: flooding.	Severe: seepage, flooding.	Severe: seepage.	Moderate: flooding.	Fair: thin layer.
17*:					
Tippo	Severe: wetness.	Severe: wetness.	Severe: wetness.	Moderate: flooding, wetness.	Fair: wetness.

See footnote at end of table.

TABLE 14.--SANITARY FACILITIES--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
17*: Urban land.					
21A: Leverett	Severe: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Fair: wetness.
22A: Tippo	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding.	Fair: wetness.
23: Guyton	Severe: flooding, wetness, percs slowly.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.
25A, 25B: Quitman	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Moderate: wetness.	Fair: too clayey, wetness.
35B2, 35C2: Tippah	Severe: wetness, percs slowly.	Severe: wetness.	Severe: too clayey.	Moderate: wetness.	Poor: too clayey, hard to pack.
35D2: Tippah	Severe: wetness, percs slowly.	Severe: slope, wetness.	Severe: too clayey.	Moderate: wetness, slope.	Poor: too clayey, hard to pack.
36B*:					
Kipling	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness, too clayey.	Moderate: wetness.	Poor: too clayey, hard to pack.
Urban land.					
38*: Pits.					
Udorthents.					
41B2, 41C2: Providence	Severe: wetness, percs slowly.	Moderate: slope.	Severe: wetness.	Moderate: wetness.	Fair: too clayey, wetness.
42B*:					
Providence	Severe: wetness, percs slowly.	Moderate: slope.	Severe: wetness.	Moderate: wetness.	Fair: too clayey, wetness.
Urban land.					
48C2: Ora	Severe: wetness, percs slowly.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Fair: wetness.
48D2: Ora	Severe: wetness, percs slowly.	Severe: slope, wetness.	Moderate: wetness, slope.	Moderate: wetness, slope.	Fair: slope, wetness.
49B2, 49C2: Savannah	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Moderate: wetness.	Fair: too clayey, wetness.

See footnote at end of table.

TABLE 14.--SANITARY FACILITIES--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
50B*:					
Savannah	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Moderate: wetness.	Fair: too clayey, wetness.
Quitman	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Moderate: wetness.	Fair: too clayey, wetness.
51B Falkner	Severe: wetness, percs slowly.	Moderate: slope.	Severe: wetness, too clayey.	Moderate: wetness.	Poor: too clayey, hard to pack.
55A, 55B, 55C2 Kipling	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness, too clayey.	Moderate: wetness.	Poor: too clayey, hard to pack.
56A Pelahatchie	Severe: wetness, percs slowly.	Slight	Severe: wetness, too clayey.	Moderate: wetness.	Poor: too clayey, hard to pack.
56B Pelahatchie	Severe: wetness, percs slowly.	Moderate: slope.	Severe: wetness, too clayey.	Moderate: wetness.	Poor: too clayey, hard to pack.
62F*:					
Smithdale	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Poor: slope.
Providence	Severe: slope, wetness, percs slowly.	Severe: slope.	Severe: wetness.	Moderate: wetness, slope.	Fair: too clayey, slope, wetness.
Kisatchie	Severe: depth to rock, slope, percs slowly.	Severe: depth to rock, slope.	Severe: depth to rock, slope, too clayey.	Severe: depth to rock, slope.	Poor: area reclaim, too clayey, hard to pack.
64F*:					
Smithdale	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Poor: slope.
Providence	Severe: slope, wetness, percs slowly.	Severe: slope.	Severe: wetness.	Moderate: wetness, slope.	Fair: too clayey, slope, wetness.
65D*:					
Smithdale	Moderate: slope.	Severe: seepage, slope.	Severe: seepage.	Severe: seepage.	Fair: too clayey, slope.
Providence	Severe: slope, wetness, percs slowly.	Severe: slope.	Severe: wetness.	Moderate: wetness, slope.	Fair: too clayey, slope, wetness.

See footnote at end of table.

TABLE 14.--SANITARY FACILITIES--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
66B*:					
Providence	Severe: wetness, percs slowly.	Moderate: slope.	Severe: wetness.	Moderate: wetness.	Fair: too clayey, wetness.
Tippah	Severe: wetness, percs slowly.	Severe: wetness.	Severe: too clayey.	Moderate: wetness.	Poor: too clayey, hard to pack.
67B*:					
Kipling	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness, too clayey.	Moderate: wetness.	Poor: too clayey, hard to pack.
Falkner	Severe: wetness, percs slowly.	Moderate: slope.	Severe: wetness, too clayey.	Moderate: wetness.	Poor: too clayey, hard to pack.
68D2 Smithdale	Moderate: slope.	Severe: seepage, slope.	Severe: seepage.	Severe: seepage.	Fair: too clayey, slope.
70F*:					
Maben	Severe: percs slowly, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
Smithdale	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Poor: slope.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 15.--CONSTRUCTION MATERIALS

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "good," "fair," and other terms. Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation]

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
2*:				
Cascilla	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Good.
Arkabutla	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Good.
3 Oaklimeter	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
5 Gillsburg	Fair: low strength, thin layer, wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
6*:				
Oaklimeter	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
Gillsburg	Fair: low strength, thin layer, wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
7 Kirkville	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
8 Urbo	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
9*:				
Urbo	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
Arkabutla	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Good.
12A Cahaba	Good	Probable	Improbable: excess fines.	Fair: small stones.
17*:				
Tippo	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
Urban land.				
21A Leverett	Fair: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
22A Tippo	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
23 Guyton	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.

See footnote at end of table.

TABLE 15.--CONSTRUCTION MATERIALS--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
25A, 25B-------------- Quitman	Fair: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
35B2, 35C2------------ Tippah	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Fair: thin layer.
35D2------------------ Tippah	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Fair: thin layer, slope.
36B*:				
Kipling--------------	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
Urban land.				
38*:				
Pits.				
Udorthents.				
41B2, 41C2------------ Providence	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
42B*:				
Providence-----------	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
Urban land.				
48C2------------------ Ora	Fair: low strength, thin layer, wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
48D2------------------ Ora	Fair: low strength, thin layer, wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: slope.
49B2, 49C2------------ Savannah	Fair: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
50B*:				
Savannah-------------	Fair: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
Quitman--------------	Fair: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
51B------------------- Falkner	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Fair: thin layer.

See footnote at end of table.

TABLE 15.--CONSTRUCTION MATERIALS--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
55A, 55B, 55C2 Kipling	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
56A, 56B Pelahatchie	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
62F*:				
Smithdale	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Providence	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: slope.
Kisatchie	Poor: area reclaim, low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, slope.
64F*:				
Smithdale	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Providence	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: slope.
65D*:				
Smithdale	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones, slope.
Providence	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: slope.
66B*:				
Providence	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
Tippah	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Fair: thin layer.
67B*:				
Kipling	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
Falkner	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Fair: thin layer.
68D2 Smithdale	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones, slope.

See footnote at end of table.

TABLE 15.--CONSTRUCTION MATERIALS--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
70F*:				
Maben----------------	Fair: low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, slope.
Smithdale------------	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 16.--WATER MANAGEMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not evaluated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation]

Map symbol and soil name	Limitations for-- Pond reservoir areas	Limitations for-- Embankments, dikes, and levees	Limitations for-- Aquifer-fed excavated ponds	Features affecting-- Drainage	Features affecting-- Irrigation	Features affecting-- Terraces and diversions	Features affecting-- Grassed waterways
2*:							
Cascilla	Moderate: seepage.	Severe: piping.	Severe: no water.	Deep to water	Erodes easily, flooding.	Erodes easily	Erodes easily.
Arkabutla	Moderate: seepage.	Severe: wetness.	Moderate: slow refill.	Flooding	Wetness, erodes easily, flooding.	Erodes easily, wetness.	Erodes easily.
3 Oaklimeter	Moderate: seepage.	Severe: piping, wetness.	Moderate: slow refill.	Flooding	Wetness, erodes easily, flooding.	Erodes easily, wetness.	Erodes easily.
5 Gillsburg	Moderate: seepage.	Severe: piping, wetness.	Severe: slow refill.	Flooding	Wetness, erodes easily, flooding.	Erodes easily, wetness.	Wetness, erodes easily.
6*:							
Oaklimeter	Moderate: seepage.	Severe: piping, wetness.	Moderate: slow refill.	Flooding	Wetness, erodes easily, flooding.	Erodes easily, wetness.	Erodes easily.
Gillsburg	Moderate: seepage.	Severe: piping, wetness.	Severe: slow refill.	Flooding	Wetness, erodes easily, flooding.	Erodes easily, wetness.	Wetness, erodes easily.
7 Kirkville	Moderate: seepage.	Severe: piping, wetness.	Moderate: slow refill.	Flooding	Wetness, flooding.	Wetness	Favorable.
8 Urbo	Slight	Severe: wetness.	Severe: slow refill.	Percs slowly, flooding.	Wetness, percs slowly, erodes easily.	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.

See footnote at end of table.

TABLE 16.--WATER MANAGEMENT--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Limitations for-- Embankments, dikes, and levees	Limitations for-- Aquifer-fed excavated ponds	Features affecting-- Drainage	Features affecting-- Irrigation	Features affecting-- Terraces and diversions	Features affecting-- Grassed waterways
9*:							
Urbo	Slight	Severe: wetness.	Severe: slow refill.	Percs slowly, flooding.	Wetness, percs slowly, erodes easily.	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.
Arkabutla	Moderate: seepage.	Severe: wetness.	Moderate: slow refill.	Flooding	Wetness, erodes easily, flooding.	Erodes easily, wetness.	Erodes easily.
12A Cahaba	Moderate: seepage.	Moderate: thin layer, piping.	Severe: no water.	Deep to water	Favorable	Favorable	Favorable.
17*:							
Tippo	Moderate: seepage.	Severe: piping.	Severe: no water.	Favorable	Wetness, erodes easily.	Erodes easily, wetness.	Erodes easily.
Urban land.							
21A Leverett	Moderate: seepage.	Severe: piping.	Severe: no water.	Favorable	Wetness, erodes easily.	Erodes easily, wetness.	Erodes easily.
22A Tippo	Moderate: seepage.	Severe: piping.	Severe: no water.	Flooding	Wetness, erodes easily, flooding.	Erodes easily, wetness.	Erodes easily.
23 Guyton	Moderate: seepage.	Severe: piping, wetness.	Severe: no water.	Percs slowly, flooding.	Wetness, percs slowly, erodes easily.	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.
25A Quitman	Slight	Moderate: piping, wetness.	Severe: no water.	Favorable	Wetness	Wetness	Favorable.
25B Quitman	Moderate: slope.	Moderate: piping, wetness.	Severe: no water.	Slope	Wetness	Wetness	Favorable.

See footnote at end of table.

TABLE 16.--WATER MANAGEMENT--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
35B2, 35C2: Tippah	Slight	Moderate: hard to pack, wetness.	Severe: no water.	Percs slowly, slope.	Wetness, percs slowly, slope.	Erodes easily, wetness.	Erodes easily, percs slowly.
35D2: Tippah	Slight	Moderate: hard to pack, wetness.	Severe: no water.	Percs slowly, slope.	Wetness, percs slowly, slope.	Slope, erodes easily, wetness.	Slope, erodes easily, percs slowly.
36B*:							
Kipling	Slight	Severe: hard to pack.	Severe: no water.	Percs slowly, slope.	Wetness, percs slowly, slope.	Wetness, percs slowly.	Percs slowly.
Urban land.							
38*:							
Pits.							
Udorthents.							
41B2, 41C2: Providence	Moderate: seepage, slope.	Moderate: thin layer, piping, wetness.	Severe: no water.	Slope	Wetness, rooting depth, slope.	Erodes easily, wetness.	Erodes easily, rooting depth.
42B*:							
Providence	Moderate: seepage, slope.	Moderate: thin layer, piping, wetness.	Severe: no water.	Slope	Wetness, rooting depth, slope.	Erodes easily, wetness.	Erodes easily, rooting depth.
Urban land.							
48C2: Ora	Moderate: seepage.	Moderate: piping, wetness.	Severe: no water.	Slope	Wetness, droughty, rooting depth.	Erodes easily, wetness.	Erodes easily, droughty.
48D2: Ora	Moderate: seepage.	Moderate: piping, wetness.	Severe: no water.	Slope	Wetness, droughty, rooting depth.	Slope, erodes easily, wetness.	Slope, erodes easily, droughty.

See footnote at end of table.

TABLE 16.--WATER MANAGEMENT--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
49B2, 49C2: Savannah	Moderate: seepage.	Severe: piping.	Severe: no water.	Slope	Wetness, rooting depth, slope.	Erodes easily, wetness, rooting depth.	Erodes easily, rooting depth.
50B*:							
Savannah	Moderate: seepage.	Severe: piping.	Severe: no water.	Slope	Wetness, rooting depth, slope.	Erodes easily, wetness, rooting depth.	Erodes easily, rooting depth.
Quitman	Moderate: slope.	Moderate: piping, wetness.	Severe: no water.	Slope	Wetness	Wetness	Favorable.
51B: Falkner	Moderate: slope.	Severe: hard to pack.	Severe: no water.	Percs slowly, slope.	Wetness, percs slowly, slope.	Erodes easily, wetness, percs slowly.	Erodes easily, percs slowly.
55A: Kipling	Slight	Severe: hard to pack.	Severe: no water.	Percs slowly	Wetness, percs slowly.	Wetness, percs slowly.	Percs slowly.
55B, 55C2: Kipling	Slight	Severe: hard to pack.	Severe: no water.	Percs slowly, slope.	Wetness, percs slowly, slope.	Wetness, percs slowly.	Percs slowly.
56A: Pelahatchie	Slight	Severe: hard to pack.	Severe: no water.	Percs slowly	Wetness, percs slowly.	Erodes easily, percs slowly, wetness.	Erodes easily, percs slowly.
56B: Pelahatchie	Moderate: slope.	Severe: hard to pack.	Severe: no water.	Percs slowly, slope.	Wetness, percs slowly, slope.	Erodes easily, percs slowly, wetness.	Erodes easily, percs slowly.
62F*:							
Smithdale	Severe: seepage, slope.	Severe: piping.	Severe: no water.	Deep to water	Slope	Slope	Slope.

See footnote at end of table.

TABLE 16.--WATER MANAGEMENT--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
62F*:							
Providence	Severe: slope.	Moderate: thin layer, piping, wetness.	Severe: no water.	Slope	Wetness, rooting depth, slope.	Slope, erodes easily, wetness.	Slope, erodes easily, rooting depth.
Kisatchie	Severe: slope.	Severe: thin layer.	Severe: no water.	Deep to water	Percs slowly, depth to rock, slope.	Slope, depth to rock, erodes easily.	Slope, erodes easily, depth to rock.
64F*, 65D*:							
Smithdale	Severe: seepage, slope.	Severe: piping.	Severe: no water.	Deep to water	Slope	Slope	Slope.
Providence	Severe: slope.	Moderate: thin layer, piping, wetness.	Severe: no water.	Slope	Wetness, rooting depth, slope.	Slope, erodes easily, wetness.	Slope, erodes easily, rooting depth.
66B*:							
Providence	Moderate: seepage, slope.	Moderate: thin layer, piping, wetness.	Severe: no water.	Slope	Wetness, rooting depth, slope.	Erodes easily, wetness.	Erodes easily, rooting depth.
Tippah	Slight	Moderate: hard to pack, wetness.	Severe: no water.	Percs slowly, slope.	Wetness, percs slowly, slope.	Erodes easily, wetness.	Erodes easily, percs slowly.
67B*:							
Kipling	Slight	Severe: hard to pack.	Severe: no water.	Percs slowly, slope.	Wetness, percs slowly, slope.	Wetness, percs slowly.	Percs slowly.
Falkner	Moderate: slope.	Severe: hard to pack.	Severe: no water.	Percs slowly, slope.	Wetness, percs slowly, slope.	Erodes easily, wetness, percs slowly.	Erodes easily, percs slowly.

See footnote at end of table.

TABLE 16.--WATER MANAGEMENT--Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
68D2-------------- Smithdale	Severe: seepage, slope.	Severe: piping.	Severe: no water.	Deep to water	Slope----------	Slope----------	Slope.
70F*:							
Maben------------	Severe: slope.	Severe: piping.	Severe: no water.	Deep to water	Slope, erodes easily.	Slope, erodes easily.	Slope, erodes easily.
Smithdale--------	Severe: seepage, slope.	Severe: piping.	Severe: no water.	Deep to water	Slope----------	Slope----------	Slope.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 17.--ENGINEERING INDEX PROPERTIES

[The symbol < means less than; > means more than. Absence of an entry indicates that data were not estimated. Some soils may have Unified classifications and USDA textures in addition to those shown. In general, the dominant classifications and textures are shown]

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In								Pct	
2*:										
Cascilla--------	0-6	Silt loam--------	ML, CL-ML, CL	A-4, A-6	100	100	95-100	75-95	20-38	3-15
	6-50	Silt loam, silty clay loam.	CL, CL-ML	A-4, A-6	100	100	95-100	75-100	20-39	5-15
	50-70	Fine sandy loam, loam, silt loam.	SM, ML, CL-ML, SM-SC	A-4	100	100	80-95	45-85	<30	NP-7
Arkabutla-------	0-8	Silt loam--------	CL, CL-ML	A-4, A-6	100	100	85-100	60-95	25-35	7-15
	8-61	Silty clay loam, loam, silt loam.	CL	A-6, A-7	100	100	85-100	70-90	30-45	12-25
3---------------- Oaklimeter	0-9	Silt loam--------	ML, CL, CL-ML	A-4	100	100	90-100	70-90	<30	NP-8
	9-30	Very fine sandy loam, silt loam, loam.	ML, CL, CL-ML	A-4	100	100	85-95	60-85	<30	NP-8
	30-65	Silt loam, silty clay loam.	ML, CL, CL-ML	A-4	100	100	90-100	90-100	<30	NP-10
5---------------- Gillsburg	0-43	Silt loam--------	CL-ML, CL	A-4	100	100	100	95-100	20-28	5-10
	43-65	Silt loam, loam, silty clay loam.	CL-ML, CL	A-4, A-6	100	100	100	90-100	20-38	5-16
6*:										
Oaklimeter------	0-9	Silt loam--------	ML, CL, CL-ML	A-4	100	100	90-100	70-90	<30	NP-8
	9-30	Very fine sandy loam, silt loam, loam.	ML, CL, CL-ML	A-4	100	100	85-95	60-85	<30	NP-8
	30-65	Silt loam, silty clay loam.	ML, CL, CL-ML	A-4	100	100	90-100	90-100	<30	NP-10
Gillsburg-------	0-43	Silt loam--------	CL-ML, CL	A-4	100	100	100	95-100	20-28	5-10
	43-65	Silt loam, loam, silty clay loam.	CL-ML, CL	A-4, A-6	100	100	100	90-100	20-38	5-16
7---------------- Kirkville	0-5	Fine sandy loam	ML, SM, CL-ML, SM-SC	A-2, A-4	100	100	60-85	30-65	<20	NP-5
	5-71	Loam, sandy loam, fine sandy loam.	ML, SM, CL-ML, SM-SC	A-2, A-4	100	100	60-100	30-65	<20	NP-5
8---------------- Urbo	0-10	Silty clay loam	CL	A-6	100	100	95-100	95-100	30-40	15-25
	10-61	Silty clay, clay loam, silty clay loam.	CL, CH	A-7	100	100	95-100	80-98	44-62	20-36
9*:										
Urbo------------	0-10	Silty clay loam	CL	A-6	100	100	95-100	95-100	30-40	15-25
	10-61	Silty clay, clay loam, silty clay loam.	CL, CH	A-7	100	100	95-100	80-98	44-62	20-36

See footnote at end of table.

TABLE 17.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	4	10	40	200		
	In								Pct	
9*:										
Arkabutla-------	0-8	Silt loam--------	CL, CL-ML	A-4, A-6	100	100	85-100	60-95	25-35	7-15
	8-61	Silty clay loam, loam, silt loam.	CL	A-6, A-7	100	100	85-100	70-90	30-45	12-25
12A-------------- Cahaba	0-6	Fine sandy loam	SM	A-4, A-2-4	95-100	95-100	65-90	30-45	---	NP
	6-41	Sandy clay loam, loam, clay loam.	SC, CL	A-4, A-6	90-100	80-100	75-90	40-75	22-35	8-15
	41-75	Sand, loamy sand, sandy loam.	SM, SP-SM	A-2-4	95-100	90-100	60-85	10-35	---	NP
17*:										
Tippo-----------	0-17	Silt loam--------	ML, CL-ML	A-4	100	100	90-100	80-100	<25	NP-7
	17-30	Silt, silt loam	ML, CL-ML	A-4	100	100	100	90-100	<25	NP-7
	30-64	Silt, silt loam	ML, CL, CL-ML	A-4, A-6	100	100	90-100	80-100	<30	NP-12
Urban land.										
21A-------------- Leverett	0-37	Silt loam--------	CL-ML, ML	A-4	100	100	100	90-100	<25	NP-7
	37-65	Silt loam--------	CL	A-4, A-6	100	100	100	90-100	20-38	8-17
22A-------------- Tippo	0-17	Silt loam--------	ML, CL-ML	A-4	100	100	90-100	80-100	<25	NP-7
	17-30	Silt, silt loam	ML, CL-ML	A-4	100	100	100	90-100	<25	NP-7
	30-64	Silt, silt loam	ML, CL, CL-ML	A-4, A-6	100	100	90-100	80-100	<30	NP-12
23--------------- Guyton	0-29	Silt loam--------	ML, CL-ML	A-4	100	100	95-100	65-90	<27	NP-7
	29-65	Silt loam, silty clay loam, clay loam.	CL, CL-ML	A-6, A-4	100	100	94-100	75-95	22-40	6-18
25A, 25B--------- Quitman	0-5	Loam-------------	SM, ML	A-4, A-2	100	100	85-100	30-55	<20	NP-3
	5-24	Fine sandy loam, loam, sandy clay loam.	SC, CL, CL-ML, SM-SC	A-4, A-6	100	100	90-100	40-70	20-35	4-15
	24-65	Sandy clay loam, loam, clay loam.	CL, SC	A-6, A-7	100	100	90-100	40-65	25-45	11-20
35B2, 35C2, 35D2- Tippah	0-8	Silt loam--------	CL, CL-ML	A-4	100	100	90-100	70-90	20-30	4-10
	8-25	Silty clay loam, silt loam.	CL	A-6, A-7	100	98-100	90-100	85-95	30-45	11-22
	25-65	Silty clay loam, silty clay, clay.	CH	A-7	100	99-100	80-100	60-95	50-65	25-40
36B*:										
Kipling---------	0-12	Silt loam--------	ML, CL-ML, CL	A-4	100	100	90-100	70-90	<30	NP-10
	12-41	Silty clay, clay, silty clay loam.	CH, CL	A-7, A-6	100	100	95-100	85-95	38-70	22-45
	41-65	Clay, silty clay	CH, CL	A-7	100	100	90-100	75-95	48-80	26-50
Urban land.										
38*:										
Pits.										
Udorthents.										

See footnote at end of table.

TABLE 17.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	4	10	40	200		
	In								Pct	
41B2, 41C2: Providence	0-5	Silt loam	ML, CL, CL-ML	A-4	100	100	100	85-100	<30	NP-10
	5-26	Silty clay loam, silt loam.	CL	A-7, A-6	100	100	95-100	85-100	30-45	11-20
	26-36	Silt loam, silty clay loam.	CL	A-6	100	100	90-100	70-90	25-40	11-20
	36-63	Loam, clay loam, sandy clay loam.	CL, SC	A-6, A-4	100	95-100	70-95	40-80	20-35	8-18
42B*:										
Providence	0-5	Silt loam	ML, CL, CL-ML	A-4	100	100	100	85-100	<30	NP-10
	5-26	Silty clay loam, silt loam.	CL	A-7, A-6	100	100	95-100	85-100	30-45	11-20
	26-36	Silt loam, silty clay loam.	CL	A-6	100	100	90-100	70-90	25-40	11-20
	36-63	Loam, clay loam, sandy clay loam.	CL, SC	A-6, A-4	100	95-100	70-95	40-80	20-35	8-18
Urban land.										
48C2, 48D2: Ora	0-6	Fine sandy loam	SM-SC, SM, ML, CL-ML	A-4, A-2	100	95-100	65-85	30-65	<30	NP-5
	6-22	Clay loam, sandy clay loam, loam.	CL	A-6, A-4, A-7	100	95-100	80-100	50-80	25-48	8-22
	22-65	Sandy clay loam, loam, sandy loam.	CL	A-6, A-7, A-4	100	95-100	80-100	50-75	25-43	8-25
49B2, 49C2: Savannah	0-11	Loam	ML, CL-ML	A-4	100	90-100	80-100	60-90	<25	NP-7
	11-28	Sandy clay loam, clay loam, loam.	CL, SC, CL-ML	A-4, A-6	98-100	90-100	80-100	40-80	23-40	7-19
	28-65	Loam, clay loam, sandy clay loam.	CL, SC, CL-ML	A-4, A-6, A-7	94-100	90-100	60-100	30-80	23-43	7-19
50B*:										
Savannah	0-11	Loam	ML, CL-ML	A-4	100	90-100	80-100	60-90	<25	NP-7
	11-28	Sandy clay loam, clay loam, loam.	CL, SC, CL-ML	A-4, A-6	98-100	90-100	80-100	40-80	23-40	7-19
	28-65	Loam, clay loam, sandy clay loam.	CL, SC, CL-ML	A-4, A-6, A-7	94-100	90-100	60-100	30-80	23-43	7-19
Quitman	0-5	Loam	SM, ML	A-4, A-2	100	100	85-100	30-55	<20	NP-3
	5-24	Fine sandy loam, loam, sandy clay loam.	SC, CL, CL-ML, SM-SC	A-4, A-6	100	100	90-100	40-70	20-35	4-15
	24-65	Sandy clay loam, loam, clay loam.	CL, SC	A-6, A-7	100	100	90-100	40-65	25-45	11-20
51B: Falkner	0-8	Silt loam	CL-ML, CL	A-4	100	100	95-100	90-100	20-30	5-10
	8-26	Silt loam, silty clay loam.	CL	A-6, A-7	100	100	95-100	85-95	30-45	15-30
	26-65	Silty clay, clay	CH	A-7	100	100	90-100	85-95	51-75	30-50
55A, 55B, 55C2: Kipling	0-12	Silt loam	ML, CL-ML, CL	A-4	100	100	90-100	70-90	<30	NP-10
	12-41	Silty clay, clay, silty clay loam.	CH, CL	A-7, A-6	100	100	95-100	85-95	38-70	22-45
	41-65	Clay, silty clay	CH, CL	A-7	100	100	90-100	75-95	48-80	26-50

See footnote at end of table.

TABLE 17.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	4	10	40	200		
	In								Pct	
56A, 56B---------Pelahatchie	0-6	Silt loam--------	CL, CL-ML	A-4, A-6	100	100	95-100	90-100	10-30	5-15
	6-14	Silt loam, silty clay loam.	CL	A-4, A-6, A-7	100	100	95-100	90-100	20-42	7-20
	14-21	Silty clay loam, silty clay.	CH, CL	A-6, A-7	100	100	95-100	90-100	35-55	15-30
	21-43	Silty clay, silty clay loam.	CH, CL	A-7	100	100	90-100	90-100	42-70	25-45
	43-75	Silty clay, clay	CH	A-7	100	100	90-100	85-95	55-115	42-100
62F*:										
Smithdale-------	0-15	Fine sandy loam	SM, SM-SC	A-4, A-2	100	85-100	60-95	28-49	<20	NP-5
	15-41	Clay loam, sandy clay loam, loam.	SM-SC, SC, CL, CL-ML	A-6, A-4	100	85-100	80-96	45-75	23-38	7-16
	41-75	Loam, sandy loam	SM, ML, CL, SC	A-4	100	85-100	65-95	36-70	<30	NP-10
Providence------	0-5	Silt loam--------	ML, CL, CL-ML	A-4	100	100	100	85-100	<30	NP-10
	5-26	Silty clay loam, silt loam.	CL	A-7, A-6	100	100	95-100	85-100	30-45	11-20
	26-36	Silt loam, silty clay loam.	CL	A-6	100	100	90-100	70-90	25-40	11-20
	36-63	Loam, clay loam, sandy clay loam.	CL, SC	A-6, A-4	100	95-100	70-95	40-80	20-35	8-18
Kisatchie-------	0-11	Fine sandy loam	SM, SM-SC	A-4	100	100	70-85	40-55	<25	NP-4
	11-19	Silty clay, silty clay loam, clay loam.	CH, CL	A-7-6	100	100	90-100	85-95	45-65	22-36
	19-23	Silty clay, channery clay loam.	CH, CL	A-7-6	85-95	65-75	55-65	50-60	45-65	22-36
	23-40	Unweathered bedrock.	---	---	---	---	---	---	---	---
64F*, 65D*:										
Smithdale-------	0-15	Fine sandy loam	SM, SM-SC	A-4, A-2	100	85-100	60-95	28-49	<20	NP-5
	15-41	Clay loam, sandy clay loam, loam.	SM-SC, SC, CL, CL-ML	A-6, A-4	100	85-100	80-96	45-75	23-38	7-16
	41-75	Loam, sandy loam	SM, ML, CL, SC	A-4	100	85-100	65-95	36-70	<30	NP-10
Providence------	0-5	Silt loam--------	ML, CL, CL-ML	A-4	100	100	100	85-100	<30	NP-10
	5-26	Silty clay loam, silt loam.	CL	A-7, A-6	100	100	95-100	85-100	30-45	11-20
	26-36	Silt loam, silty clay loam.	CL	A-6	100	100	90-100	70-90	25-40	11-20
	36-63	Loam, clay loam, sandy clay loam.	CL, SC	A-6, A-4	100	95-100	70-95	40-80	20-35	8-18
66B*:										
Providence------	0-5	Silt loam--------	ML, CL, CL-ML	A-4	100	100	100	85-100	<30	NP-10
	5-26	Silty clay loam, silt loam.	CL	A-7, A-6	100	100	95-100	85-100	30-45	11-20
	26-36	Silt loam, silty clay loam.	CL	A-6	100	100	90-100	70-90	25-40	11-20
	36-63	Loam, clay loam, sandy clay loam.	CL, SC	A-6, A-4	100	95-100	70-95	40-80	20-35	8-18

See footnote at end of table.

TABLE 17.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	4	10	40	200		
	In								Pct	
66B*:										
Tippah----------	0-8	Silt loam--------	CL, CL-ML	A-4	100	100	90-100	70-90	20-30	4-10
	8-25	Silty clay loam, silt loam.	CL	A-6, A-7	100	98-100	90-100	85-95	30-45	11-22
	25-65	Silty clay loam, silty clay, clay.	CH	A-7	100	99-100	80-100	60-95	50-65	25-40
67B*:										
Kipling---------	0-12	Silt loam--------	ML, CL-ML, CL	A-4	100	100	90-100	70-90	<30	NP-10
	12-41	Silty clay, clay, silty clay loam.	CH, CL	A-7, A-6	100	100	95-100	85-95	38-70	22-45
	41-65	Clay, silty clay	CH, CL	A-7	100	100	90-100	75-95	48-80	26-50
Falkner---------	0-8	Silt loam--------	CL-ML, CL	A-4	100	100	95-100	90-100	20-30	5-10
	8-26	Silt loam, silty clay loam.	CL	A-6, A-7	100	100	95-100	85-95	30-45	15-30
	26-65	Silty clay, clay	CH	A-7	100	100	90-100	85-95	51-75	30-50
68D2------------- Smithdale	0-15	Fine sandy loam	SM, SM-SC	A-4, A-2	100	85-100	60-95	28-49	<20	NP-5
	15-41	Clay loam, sandy clay loam, loam.	SM-SC, SC, CL, CL-ML	A-6, A-4	100	85-100	80-96	45-75	23-38	7-16
	41-75	Loam, sandy loam	SM, ML, CL, SC	A-4	100	85-100	65-95	36-70	<30	NP-10
70F*:										
Maben-----------	0-11	Fine sandy loam	SM, SM-SC	A-4	95-100	90-100	70-85	36-50	<30	NP-7
	11-42	Clay, clay loam, silty clay.	MH	A-7	90-100	90-100	90-100	75-95	50-80	18-40
	42-80	Stratified loam and weathered bedrock.	CL, ML, CH, MH	A-6, A-7	95-100	80-95	70-90	60-75	30-60	11-25
Smithdale-------	0-15	Fine sandy loam	SM, SM-SC	A-4, A-2	100	85-100	60-95	28-49	<20	NP-5
	15-41	Clay loam, sandy clay loam, loam.	SM-SC, SC, CL, CL-ML	A-6, A-4	100	85-100	80-96	45-75	23-38	7-16
	41-75	Loam, sandy loam	SM, ML, CL, SC	A-4	100	85-100	65-95	36-70	<30	NP-10

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 18.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS

[The symbol < means less than; > means more than. Entries under "Erosion factors--T" apply to the entire profile. Entries under "Organic matter" apply only to the surface layer. Absence of an entry indicates that data were not available or were not estimated]

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors K	Erosion factors T	Organic matter
	In	Pct	G/cc	In/hr	In/in	pH				Pct
2*:										
Cascilla--------	0-6	5-20	1.40-1.50	0.6-2.0	0.18-0.22	4.5-5.5	Low-----------	0.43	5	1-3
	6-50	18-30	1.45-1.50	0.6-2.0	0.16-0.20	4.5-5.5	Low-----------	0.43		
	50-70	5-25	1.40-1.50	0.6-2.0	0.16-0.20	4.5-5.5	Low-----------	0.43		
Arkabutla-------	0-8	5-25	1.40-1.50	0.6-2.0	0.20-0.22	4.5-5.5	Low-----------	0.43	5	1-3
	8-61	20-35	1.45-1.55	0.6-2.0	0.18-0.21	4.5-5.5	Low-----------	0.32		
3---------------- Oaklimeter	0-9	10-16	1.40-1.50	0.6-2.0	0.20-0.22	4.5-5.5	Low-----------	0.43	5	.5-2
	9-30	7-18	1.40-1.50	0.6-2.0	0.15-0.20	4.5-5.5	Low-----------	0.43		
	30-65	7-30	1.40-1.50	0.6-2.0	0.20-0.20	4.5-5.5	Low-----------	0.43		
5---------------- Gillsburg	0-43	6-18	1.40-1.50	0.6-2.0	0.20-0.22	4.5-5.5	Low-----------	0.43	5	1-3
	43-65	10-18	1.40-1.55	0.2-0.6	0.16-0.18	4.5-5.5	Low-----------	0.43		
6*:										
Oaklimeter------	0-9	10-16	1.40-1.50	0.6-2.0	0.20-0.22	4.5-5.5	Low-----------	0.43	5	.5-2
	9-30	7-18	1.40-1.50	0.6-2.0	0.15-0.20	4.5-5.5	Low-----------	0.43		
	30-65	7-30	1.40-1.50	0.6-2.0	0.20-0.20	4.5-5.5	Low-----------	0.43		
Gillsburg-------	0-43	6-18	1.40-1.50	0.6-2.0	0.20-0.22	4.5-5.5	Low-----------	0.43	5	1-3
	43-65	10-18	1.40-1.55	0.2-0.6	0.16-0.18	4.5-5.5	Low-----------	0.43		
7---------------- Kirkville	0-5	10-20	1.30-1.50	0.6-2.0	0.15-0.15	4.5-5.5	Low-----------	0.28	5	.5-2
	5-71	10-18	1.35-1.55	0.6-2.0	0.10-0.15	4.5-5.5	Low-----------	0.28		
8---------------- Urbo	0-10	12-35	1.40-1.50	0.06-0.2	0.19-0.21	4.5-5.5	Low-----------	0.49	5	1-3
	10-61	35-55	1.45-1.55	<0.06	0.18-0.20	4.5-5.5	Moderate------	0.28		
9*:										
Urbo------------	0-10	12-35	1.40-1.50	0.06-0.2	0.19-0.21	4.5-5.5	Low-----------	0.49	5	1-3
	10-61	35-55	1.45-1.55	<0.06	0.18-0.20	4.5-5.5	Moderate------	0.28		
Arkabutla-------	0-8	5-25	1.40-1.50	0.6-2.0	0.20-0.22	4.5-5.5	Low-----------	0.43	5	1-3
	8-61	20-35	1.45-1.55	0.6-2.0	0.18-0.21	4.5-5.5	Low-----------	0.32		
12A-------------- Cahaba	0-6	7-17	1.35-1.60	2.0-6.0	0.10-0.14	4.5-6.0	Low-----------	0.24	5	.5-2
	6-41	18-35	1.35-1.60	0.6-2.0	0.12-0.15	4.5-6.0	Low-----------	0.28		
	41-75	4-20	1.40-1.70	2.0-20	0.05-0.10	4.5-6.0	Low-----------	0.24		
17*:										
Tippo-----------	0-17	8-18	1.30-1.45	0.6-2.0	0.20-0.22	4.5-6.0	Low-----------	0.43	3	.5-1
	17-30	8-20	1.40-1.55	0.6-2.0	0.20-0.22	4.5-6.0	Low-----------	0.43		
	30-64	8-20	1.40-1.55	0.6-2.0	0.20-0.22	4.5-6.0	Low-----------	0.43		
Urban land.										
21A-------------- Leverett	0-37	8-18	1.30-1.45	0.6-2.0	0.20-0.23	4.5-6.0	Low-----------	0.37	4	.5-1
	37-65	8-15	1.40-1.55	0.6-2.0	0.15-0.20	4.5-6.0	Low-----------	0.37		
22A-------------- Tippo	0-17	8-18	1.30-1.45	0.6-2.0	0.20-0.22	4.5-6.0	Low-----------	0.43	3	.5-1
	17-30	8-20	1.40-1.55	0.6-2.0	0.20-0.22	4.5-6.0	Low-----------	0.43		
	30-64	8-20	1.40-1.55	0.6-2.0	0.20-0.22	4.5-6.0	Low-----------	0.43		

See footnote at end of table.

TABLE 18.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors K	Erosion factors T	Organic matter
	In	Pct	G/cc	In/hr	In/in	pH				Pct
23---------------- Guyton	0-29	7-25	1.35-1.65	0.6-2.0	0.20-0.23	3.6-6.0	Low----------	0.43	5	<2
	29-65	20-35	1.35-1.70	0.06-0.2	0.15-0.22	3.6-6.0	Low----------	0.37		
25A, 25B--------- Quitman	0-5	5-15	1.40-1.55	0.6-2.0	0.13-0.16	4.5-5.5	Low----------	0.28	5	1-3
	5-24	18-35	1.55-1.65	0.6-2.0	0.15-0.20	4.5-5.5	Low----------	0.28		
	24-65	18-35	1.50-1.60	0.2-0.6	0.10-0.18	4.5-5.5	Low----------	0.28		
35B2, 35C2, 35D2- Tippah	0-8	5-20	1.35-1.45	0.6-2.0	0.20-0.22	4.5-6.0	Low----------	0.43	5	.5-2
	8-25	20-35	1.40-1.50	0.6-2.0	0.19-0.21	4.5-6.0	Moderate-----	0.43		
	25-65	30-55	1.40-1.55	0.06-0.2	0.16-0.18	4.5-6.0	High---------	0.24		
36B*:										
Kipling---------	0-12	16-29	1.30-1.48	0.06-0.2	0.20-0.22	3.6-6.0	Low----------	0.32	5	.5-2
	12-41	36-60	1.37-1.41	0.06-0.2	0.20-0.22	3.6-8.4	High---------	0.32		
	41-65	40-60	1.57-1.60	<0.06	0.18-0.20	5.1-8.4	Very high----	0.32		
Urban land.										
38*: Pits.										
Udorthents.										
41B2, 41C2------- Providence	0-5	5-12	1.30-1.40	0.6-2.0	0.20-0.22	4.5-6.0	Low----------	0.49	3	.5-3
	5-26	18-30	1.40-1.50	0.6-2.0	0.20-0.22	4.5-6.0	Low----------	0.43		
	26-36	20-30	1.40-1.60	0.2-0.6	0.08-0.10	4.5-6.0	Moderate-----	0.32		
	36-63	12-25	1.40-1.60	0.2-0.6	0.08-0.10	4.5-6.0	Low----------	0.32		
42B*:										
Providence------	0-5	5-12	1.30-1.40	0.6-2.0	0.20-0.22	4.5-6.0	Low----------	0.49	3	.5-3
	5-26	18-30	1.40-1.50	0.6-2.0	0.20-0.22	4.5-6.0	Low----------	0.43		
	26-36	20-30	1.40-1.60	0.2-0.6	0.08-0.10	4.5-6.0	Moderate-----	0.32		
	36-63	12-25	1.40-1.60	0.2-0.6	0.08-0.10	4.5-6.0	Low----------	0.32		
Urban land.										
48C2, 48D2------- Ora	0-6	10-18	1.45-1.55	2.0-6.0	0.10-0.13	3.6-5.5	Low----------	0.28	3	1-3
	6-22	18-33	1.45-1.60	0.6-2.0	0.12-0.18	3.6-5.5	Low----------	0.37		
	22-65	18-33	1.70-1.80	0.2-0.6	0.05-0.10	3.6-5.5	Low----------	0.32		
49B2, 49C2------- Savannah	0-11	3-16	1.45-1.65	0.6-2.0	0.16-0.20	3.6-5.5	Low----------	0.37	3	.5-3
	11-28	18-32	1.55-1.75	0.6-2.0	0.13-0.20	3.6-5.5	Low----------	0.28		
	28-65	18-32	1.60-1.80	0.2-0.6	0.05-0.10	3.6-5.5	Low----------	0.24		
50B*:										
Savannah--------	0-11	3-16	1.45-1.65	0.6-2.0	0.16-0.20	3.6-5.5	Low----------	0.37	3	.5-3
	11-28	18-32	1.55-1.75	0.6-2.0	0.13-0.20	3.6-5.5	Low----------	0.28		
	28-65	18-32	1.60-1.80	0.2-0.6	0.05-0.10	3.6-5.5	Low----------	0.24		
Quitman---------	0-5	5-15	1.40-1.55	0.6-2.0	0.13-0.16	4.5-5.5	Low----------	0.28	5	1-3
	5-24	18-35	1.55-1.65	0.6-2.0	0.15-0.20	4.5-5.5	Low----------	0.28		
	24-65	18-35	1.50-1.60	0.2-0.6	0.10-0.18	4.5-5.5	Low----------	0.28		
51B-------------- Falkner	0-8	5-18	1.40-1.55	0.2-0.6	0.20-0.22	4.5-6.0	Low----------	0.49	4	.5-3
	8-26	20-35	1.35-1.55	0.2-0.6	0.19-0.22	4.5-6.0	Moderate-----	0.43		
	26-65	38-60	1.40-1.50	0.06-0.2	0.16-0.18	4.5-6.5	High---------	0.24		
55A, 55B, 55C2--- Kipling	0-12	16-29	1.30-1.48	0.06-0.2	0.20-0.22	3.6-6.0	Low----------	0.32	5	.5-2
	12-41	36-60	1.37-1.41	0.06-0.2	0.20-0.22	3.6-8.4	High---------	0.32		
	41-65	40-60	1.57-1.60	<0.06	0.18-0.20	5.1-8.4	Very high----	0.32		

See footnote at end of table.

TABLE 18.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors K	Erosion factors T	Organic matter
	In	Pct	G/cc	In/hr	In/in	pH				Pct
56A, 56B---------Pelahatchie	0-6	15-30	1.35-1.45	0.6-2.0	0.20-0.22	4.5-6.0	Moderate-----	0.43	5	2-3
	6-14	15-30	1.40-1.50	0.6-2.0	0.20-0.22	4.5-6.0	Moderate-----	0.43		
	14-21	20-50	1.40-1.50	0.2-0.6	0.16-0.18	4.5-6.5	Moderate-----	0.32		
	21-43	30-55	1.40-1.55	0.06-0.2	0.16-0.18	5.1-7.8	High---------	0.24		
	43-75	40-80	1.40-1.55	<0.06	0.10-0.15	7.4-8.4	Very high----	0.24		
62F*:										
Smithdale-------	0-15	2-15	1.40-1.50	2.0-6.0	0.14-0.16	4.5-5.5	Low----------	0.28	5	.5-2
	15-41	18-33	1.40-1.55	0.6-2.0	0.15-0.17	4.5-5.5	Low----------	0.24		
	41-75	12-27	1.40-1.55	2.0-6.0	0.14-0.16	4.5-5.5	Low----------	0.28		
Providence------	0-5	5-12	1.30-1.40	0.6-2.0	0.20-0.22	4.5-6.0	Low----------	0.49	3	.5-3
	5-26	18-30	1.40-1.50	0.6-2.0	0.20-0.22	4.5-6.0	Low----------	0.43		
	26-36	20-30	1.40-1.60	0.2-0.6	0.08-0.10	4.5-6.0	Moderate-----	0.32		
	36-63	12-25	1.40-1.60	0.2-0.6	0.08-0.10	4.5-6.0	Low----------	0.32		
Kisatchie-------	0-11	5-20	1.35-1.65	2.0-6.0	0.11-0.15	4.5-5.5	Low----------	0.32	3	.5-2
	11-19	35-55	1.20-1.70	<0.06	0.15-0.18	3.6-5.0	High---------	0.32		
	19-23	27-55	1.20-1.70	<0.06	0.10-0.15	3.6-5.0	High---------	0.32		
	23-40	---	---	---	---	---	-------------	----		
64F*, 65D*:										
Smithdale-------	0-15	2-15	1.40-1.50	2.0-6.0	0.14-0.16	4.5-5.5	Low----------	0.28	5	.5-2
	15-41	18-33	1.40-1.55	0.6-2.0	0.15-0.17	4.5-5.5	Low----------	0.24		
	41-75	12-27	1.40-1.55	2.0-6.0	0.14-0.16	4.5-5.5	Low----------	0.28		
Providence------	0-5	5-12	1.30-1.40	0.6-2.0	0.20-0.22	4.5-6.0	Low----------	0.49	3	.5-3
	5-26	18-30	1.40-1.50	0.6-2.0	0.20-0.22	4.5-6.0	Low----------	0.43		
	26-36	20-30	1.40-1.60	0.2-0.6	0.08-0.10	4.5-6.0	Moderate-----	0.32		
	36-63	12-25	1.40-1.60	0.2-0.6	0.08-0.10	4.5-6.0	Low----------	0.32		
66B*:										
Providence------	0-5	5-12	1.30-1.40	0.6-2.0	0.20-0.22	4.5-6.0	Low----------	0.49	3	.5-3
	5-26	18-30	1.40-1.50	0.6-2.0	0.20-0.22	4.5-6.0	Low----------	0.43		
	26-36	20-30	1.40-1.60	0.2-0.6	0.08-0.10	4.5-6.0	Moderate-----	0.32		
	36-63	12-25	1.40-1.60	0.2-0.6	0.08-0.10	4.5-6.0	Low----------	0.32		
Tippah----------	0-8	5-20	1.35-1.45	0.6-2.0	0.20-0.22	4.5-6.0	Low----------	0.43	5	.5-2
	8-25	20-35	1.40-1.50	0.6-2.0	0.19-0.21	4.5-6.0	Moderate-----	0.43		
	25-65	30-55	1.40-1.55	0.06-0.2	0.16-0.18	4.5-6.0	High---------	0.24		
67B*:										
Kipling---------	0-12	16-29	1.30-1.48	0.06-0.2	0.20-0.22	3.6-6.0	Low----------	0.32	5	.5-2
	12-41	36-60	1.37-1.41	0.06-0.2	0.20-0.22	3.6-8.4	High---------	0.32		
	41-65	40-60	1.57-1.60	<0.06	0.18-0.20	5.1-8.4	Very high----	0.32		
Falkner---------	0-8	5-18	1.40-1.55	0.2-0.6	0.20-0.22	4.5-6.0	Low----------	0.49	4	.5-3
	8-26	20-35	1.35-1.55	0.2-0.6	0.19-0.22	4.5-6.0	Moderate-----	0.43		
	26-65	38-60	1.40-1.50	0.06-0.2	0.16-0.18	4.5-6.5	High---------	0.24		
68D2-------------Smithdale	0-15	2-15	1.40-1.50	2.0-6.0	0.14-0.16	4.5-5.5	Low----------	0.28	5	.5-2
	15-41	18-33	1.40-1.55	0.6-2.0	0.15-0.17	4.5-5.5	Low----------	0.24		
	41-75	12-27	1.40-1.55	2.0-6.0	0.14-0.16	4.5-5.5	Low----------	0.28		
70F*:										
Maben-----------	0-11	5-20	1.40-1.50	0.6-2.0	0.12-0.16	5.6-6.5	Low----------	0.28	3	.5-1
	11-42	35-55	1.45-1.55	0.2-0.6	0.14-0.18	4.5-6.0	High---------	0.28		
	42-80	---	---	0.2-0.6	0.14-0.18	4.5-6.0	Moderate-----	0.28		

See footnote at end of table.

TABLE 18.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Organic matter
								K	T	
	In	Pct	G/cc	In/hr	In/in	pH				Pct
70F*:										
Smithdale-------	0-15	2-15	1.40-1.50	2.0-6.0	0.14-0.16	4.5-5.5	Low-----------	0.28	5	.5-2
	15-41	18-33	1.40-1.55	0.6-2.0	0.15-0.17	4.5-5.5	Low-----------	0.24		
	41-75	12-27	1.40-1.55	2.0-6.0	0.14-0.16	4.5-5.5	Low-----------	0.28		

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 19.--SOIL AND WATER FEATURES

["Flooding" and "water table" and terms such as "rare," "brief," "apparent," and "perched" are explained in the text. The symbol < means less than; > means more than. Absence of an entry indicates that the feature is not a concern or that data were not estimated]

Map symbol and soil name	Hydrologic group	Flooding			High water table			Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Uncoated steel	Concrete
					Ft				
2*:									
Cascilla	B	Frequent	Brief to very long.	Jan-Apr	>6.0	---	---	Low	Moderate.
Arkabutla	C	Frequent	Brief to very long.	Jan-Apr	1.0-1.5	Apparent	Jan-Apr	High	High.
3 Oaklimeter	C	Occasional	Brief	Nov-Apr	1.5-2.5	Apparent	Nov-Mar	Moderate	High.
5 Gillsburg	C	Occasional	Brief	Jan-Mar	1.0-1.5	Apparent	Jan-Apr	High	High.
6*:									
Oaklimeter	C	Frequent	Brief to long.	Nov-Apr	1.5-2.5	Apparent	Nov-Mar	Moderate	High.
Gillsburg	C	Frequent	Brief to long.	Jan-Mar	1.0-1.5	Apparent	Jan-Apr	High	High.
7 Kirkville	C	Occasional	Brief	Jan-Apr	1.5-2.5	Apparent	Jan-Apr	Moderate	High.
8 Urbo	D	Occasional	Brief	Jan-Mar	1.0-2.0	Apparent	Jan-Mar	High	High.
9*:									
Urbo	D	Frequent	Brief to long.	Jan-Mar	1.0-2.0	Apparent	Jan-Mar	High	High.
Arkabutla	C	Frequent	Brief to long.	Jan-Mar	1.0-1.5	Apparent	Jan-Apr	High	High.
12A Cahaba	B	Rare	---	---	>6.0	---	---	Moderate	Moderate.
17*:									
Tippo	C	Rare	---	---	1.5-2.5	Perched	Jan-Apr	Moderate	Moderate.
Urban land.									
21A Leverett	C	None	---	---	2.5-3.0	Perched	Jan-Apr	Moderate	Moderate.
22A Tippo	C	Occasional	Brief	Jan-Apr	1.5-2.5	Perched	Jan-Apr	Moderate	Moderate.
23 Guyton	D	Occasional	Brief	Jan-Dec	0-1.5	Perched	Dec-May	High	Moderate.

See footnote at end of table.

TABLE 19.--SOIL AND WATER FEATURES--Continued

Map symbol and soil name	Hydrologic group	Flooding			High water table			Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Uncoated steel	Concrete
					Ft				
25A, 25B---------- Quitman	C	None---------	---	---	1.5-2.0	Perched	Jan-Mar	High-----	Moderate.
35B2, 35C2, 35D2-- Tippah	C	None---------	---	---	2.0-2.5	Perched	Dec-Apr	High-----	High.
36B*: Kipling----------	D	None---------	---	---	1.5-3.0	Perched	Jan-Mar	High-----	High.
Urban land.									
38*: Pits.									
Udorthents.									
41B2, 41C2-------- Providence	C	None---------	---	---	1.5-3.0	Perched	Jan-Mar	Moderate	Moderate.
42B*: Providence-------	C	None---------	---	---	1.5-3.0	Perched	Jan-Mar	Moderate	Moderate.
Urban land.									
48C2, 48D2-------- Ora	C	None---------	---	---	2.0-3.5	Perched	Feb-Apr	Moderate	High.
49B2, 49C2-------- Savannah	C	None---------	---	---	1.5-3.0	Perched	Jan-Mar	Moderate	High.
50B*: Savannah---------	C	None---------	---	---	1.5-3.0	Perched	Jan-Mar	Moderate	High.
Quitman----------	C	None---------	---	---	1.5-2.0	Perched	Jan-Mar	High-----	Moderate.
51B--------------- Falkner	C	None---------	---	---	1.5-2.5	Perched	Jan-Mar	High-----	Moderate.
55A, 55B, 55C2---- Kipling	D	None---------	---	---	1.5-3.0	Perched	Jan-Mar	High-----	High.
56A, 56B---------- Pelahatchie	C	None---------	---	---	>6.0	---	---	High-----	Moderate.
62F*: Smithdale--------	B	None---------	---	---	>6.0	---	---	Low------	Moderate.
Providence-------	C	None---------	---	---	1.5-3.0	Perched	Jan-Mar	Moderate	Moderate.
Kisatchie--------	D	None---------	---	---	>6.0	---	---	High-----	High.
64F*, 65D*: Smithdale--------	B	None---------	---	---	>6.0	---	---	Low------	Moderate.
Providence-------	C	None---------	---	---	1.5-3.0	Perched	Jan-Mar	Moderate	Moderate.
66B*: Providence-------	C	None---------	---	---	1.5-3.0	Perched	Jan-Mar	Moderate	Moderate.
Tippah-----------	C	None---------	---	---	2.0-2.5	Perched	Dec-Apr	High-----	High.

See footnote at end of table.

TABLE 19.--SOIL AND WATER FEATURES--Continued

Map symbol and soil name	Hydrologic group	Flooding			High water table			Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Uncoated steel	Concrete
					Ft				
67B*:									
Kipling----------	D	None--------	---	---	1.5-3.0	Perched	Jan-Mar	High-----	High.
Falkner----------	C	None--------	---	---	1.5-2.5	Perched	Jan-Mar	High-----	Moderate.
68D2-------------- Smithdale	B	None--------	---	---	>6.0	---	---	Low------	Moderate.
70F*:									
Maben------------	C	None--------	---	---	>6.0	---	---	High-----	Moderate.
Smithdale--------	B	None--------	---	---	>6.0	---	---	Low------	Moderate.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 20.--PHYSICAL AND CHEMICAL ANALYSES OF SELECTED SOILS

[Analyzed by the Soil Genesis and Morphology Laboratory of the Mississippi Agricultural and Forestry Experiment Station]

Soil series and sample number	Horizon	Depth	Particle-size distribution: Sand (2.0-0.05 mm)	Silt (0.05-0.002 mm)	Clay (<0.002mm)	Extractable bases: Ca	Mg	K	Na	Extractable Acidity	Sum of cations	Base saturation	Reaction 1:1 Soil:Water	Organic Matter
		In	Pct	Pct	Pct	---Milliequivalents/100 grams of soil---						Pct	pH	Pct
Kipling silt loam: * S82MS-121-1	Ap	0-6	6.7	79.2	14.1	3.22	1.32	0.23	0.07	10.99	15.83	30.5	4.5	3.4
	E	6-12	4.0	77.9	18.1	2.30	1.14	0.07	0.07	9.39	12.97	27.6	4.5	0.8
	Bt1	12-26	2.3	46.2	51.5	8.35	5.42	0.30	0.69	20.56	35.32	41.7	4.5	0.5
	Bt2	26-41	2.1	45.2	52.7	13.19	7.89	0.31	0.54	13.97	35.90	61.0	4.8	0.3
	BC	41-52	1.9	47.2	50.9	16.83	9.54	0.29	1.68	9.47	37.81	74.9	4.8	0.5
	C	52-65	2.0	50.2	47.8	18.78	9.76	0.29	1.89	3.05	33.77	90.9	5.9	0.4
Pelahatchie silt loam: * S81MS-121-1	Ap	0-6	3.5	77.5	19.0	8.32	2.18	0.49	0.08	7.71	18.78	58.9	5.0	2.3
	Bt1	6-14	2.1	71.2	26.7	6.58	2.82	0.14	0.17	12.73	22.44	43.2	4.7	1.4
	Bt2	14-21	1.8	66.5	31.7	7.29	3.08	0.11	0.36	14.11	24.95	43.4	5.0	1.2
	2Bt3	21-29	1.2	52.1	46.7	12.96	6.37	0.15	0.89	15.72	36.09	56.4	5.1	1.0
	2Bt4	29-43	0.8	53.4	45.8	19.42	9.49	0.14	2.09	6.43	37.47	82.8	5.7	0.5
	2C	43-75	1.6	57.2	41.2	21.95	9.74	0.12	2.14	1.11	35.06	96.8	7.7	0.2
Providence silt loam: * S82MS-121-2	Ap	0-5	16.4	74.7	8.9	2.62	0.95	0.29	0.04	3.97	7.87	49.5	5.4	1.3
	Bt1	5-17	6.4	70.2	23.4	1.06	2.35	0.18	0.16	8.24	11.99	31.2	4.7	0.3
	Bt2	17-26	7.3	74.3	18.4	1.07	2.25	0.12	0.28	9.36	13.08	28.4	4.8	0.3
	Btx1	26-36	7.8	71.8	20.4	0.72	4.28	0.16	0.62	9.37	15.15	38.1	4.9	0.1
	2Btx1	36-44	13.3	69.9	16.8	0.90	4.71	0.10	0.61	7.85	14.17	44.6	4.8	0.1
	2Btx2	44-56	28.4	58.9	12.7	1.30	3.96	0.06	0.49	2.99	8.80	66.0	4.9	0.1
	2Btx3	56-63	24.0	59.4	16.6	2.40	3.06	0.07	0.70	1.73	7.96	78.2	5.5	0.1

*Location of pedon sampled is the same as given for the typical pedon in "Soil Series and Their Morphology."

TABLE 21.--CLASSIFICATION OF THE SOILS

Soil name	Family or higher taxonomic class
Arkabutla	Fine-silty, mixed, acid, thermic Aeric Fluvaquents
Cahaba	Fine-loamy, siliceous, thermic Typic Hapludults
Cascilla	Fine-silty, mixed, thermic Fluventic Dystrochrepts
Falkner	Fine-silty, siliceous, thermic Aquic Paleudalfs
Gillsburg	Coarse-silty, mixed, acid, thermic Aeric Fluvaquents
Guyton	Fine-silty, siliceous, thermic Typic Glossaqualfs
Kipling	Fine, montmorillonitic, thermic Vertic Hapludalfs
Kirkville	Coarse-loamy, siliceous, thermic Fluvaquentic Dystrochrepts
Kisatchie	Fine, montmorillonitic, thermic Typic Hapludalfs
Leverett	Coarse-silty, mixed, thermic Haplic Glossudalfs
Maben	Fine, mixed, thermic Ultic Hapludalfs
Oaklimeter	Coarse-silty, mixed, thermic Fluvaquentic Dystrochrepts
Ora	Fine-loamy, siliceous, thermic Typic Fragiudults
Pelahatchie	Fine-silty, mixed, thermic Aquic Hapludalfs
Providence	Fine-silty, mixed, thermic Typic Fragiudalfs
Quitman	Fine-loamy, siliceous, thermic Aquic Paleudults
Savannah	Fine-loamy, siliceous, thermic Typic Fragiudults
Smithdale	Fine-loamy, siliceous, thermic Typic Hapludults
Tippah	Fine-silty, mixed, thermic Aquic Paleudalfs
Tippo	Coarse-silty, mixed, thermic Aquic Glossudalfs
Urbo	Fine, mixed, acid, thermic Aeric Haplaquepts

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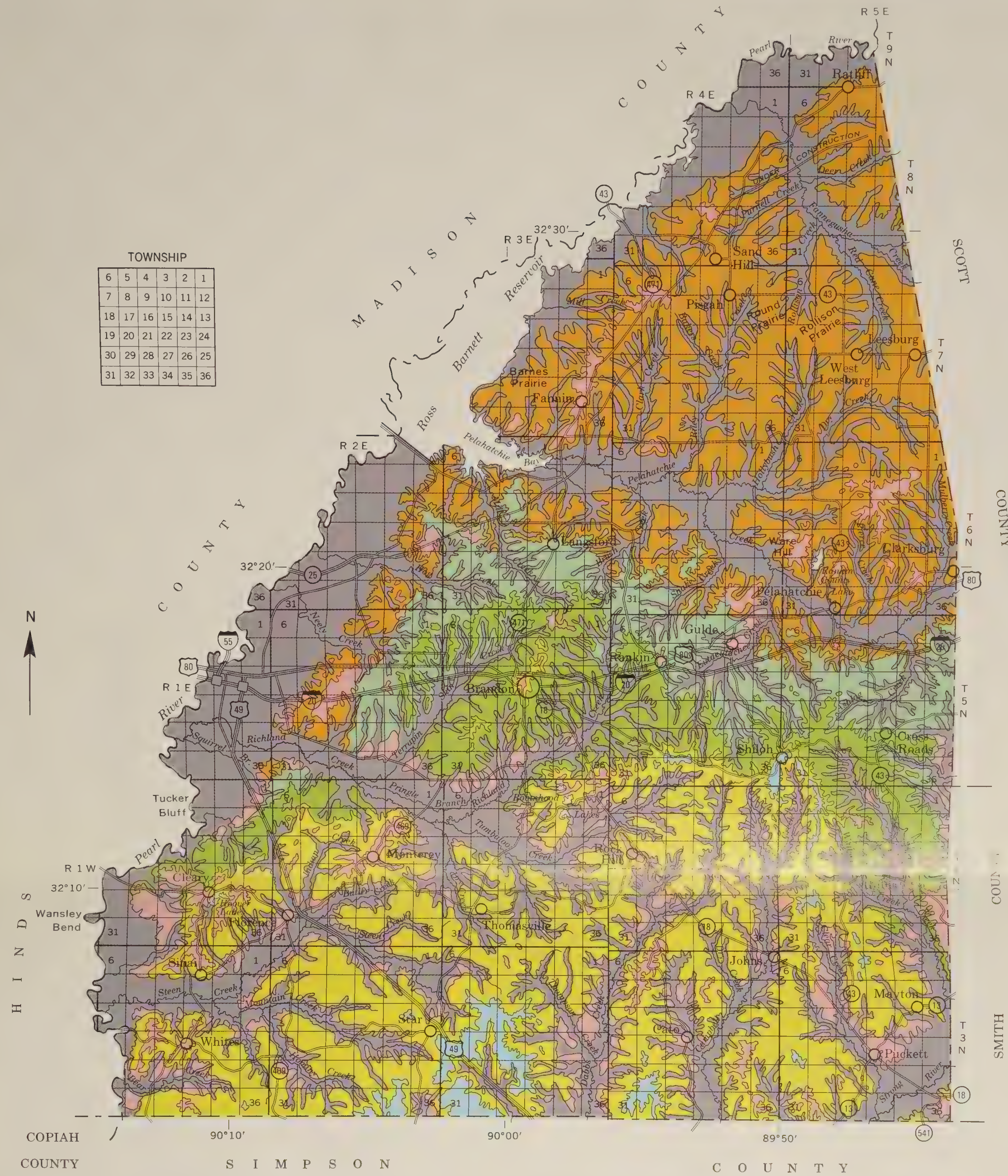


LEGEND

Qa	QUATERNARY	RECENT	Alluvium - fine-to very coarse-grained sand; gravel; silt and clay; including low terraces.
Qt	QUATERNARY	PLEISTOCENE	Pre-loess Terrace deposits - fine-to coarse-grained sand; occasional scattered gravel; some clay lenses.
Pc	QUATERNARY	PLEISTOCENE	Citronelle Formation - quartz and chert gravel; fine-to coarse-grained sand; clay lenses.
Mc	TERTIARY	MIOCENE	Catahoula Formation - silty, sandy clays; silts and siltstones; sands and sandstones.
Ov	TERTIARY	OLIGOCENE	Vicksburg Group - includes in ascending order: Mint Spring marls and limy sand; Glendon limestones and marls; Byram clayey marl; Bucatunna carbonaceous clay.
Of	TERTIARY	OLIGOCENE	Forest Hill Formation - fine-grained silty sands; silty, carbonaceous clays; lignite.
Ey	TERTIARY	EOCENE	Yazoo Formation - calcareous, fossiliferous clay; very limy near base.

GENERAL GEOLOGY MAP

RANKIN COUNTY, MISSISSIPPI

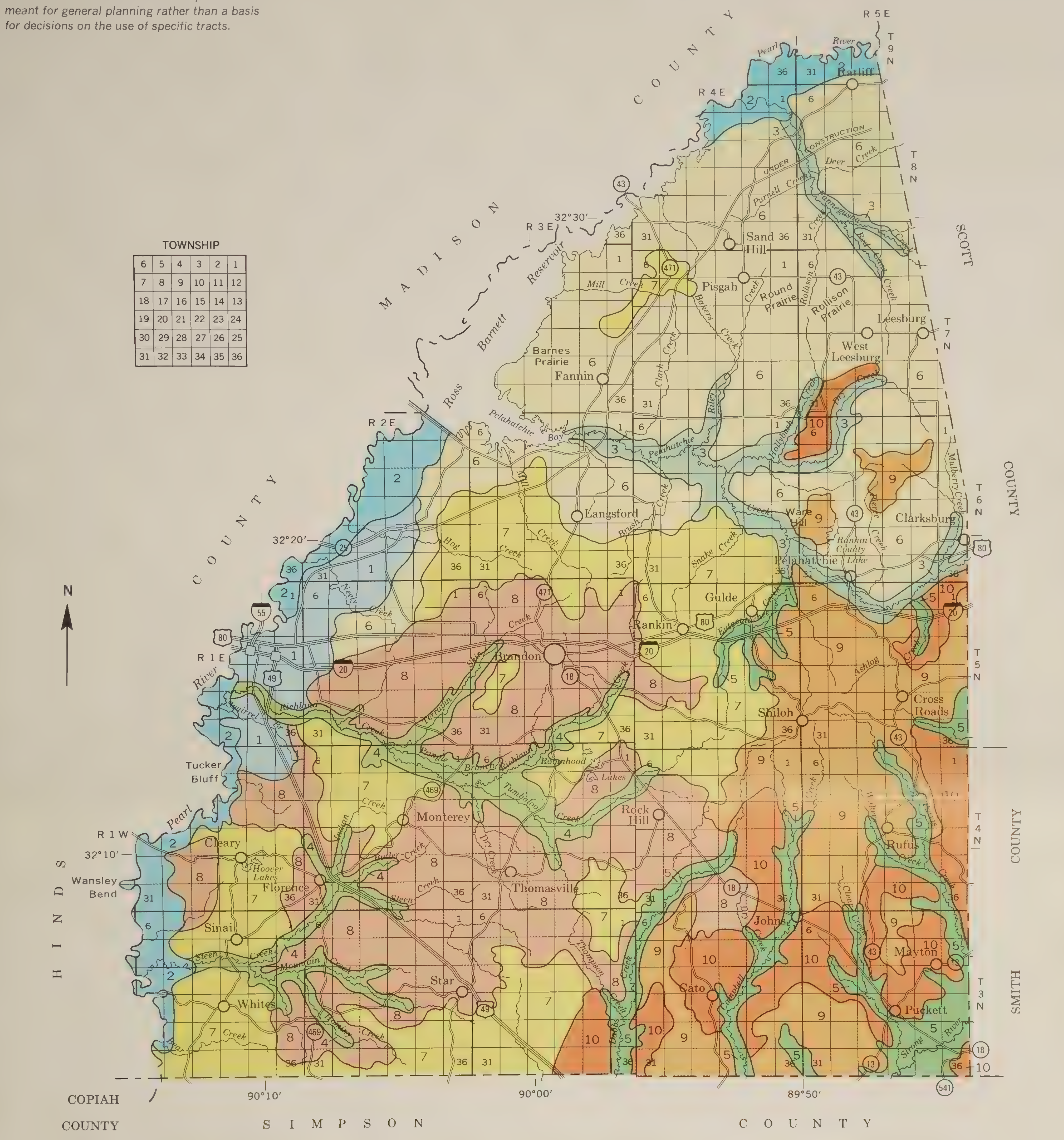
Information Taken From:
Rankin County Geology and Mineral Resources
by Wilbur T. Baughman Et Al.
Bulletin 115
Mississippi Geological Survey
Jackson, Mississippi
1971

Scale 1:253,440

1 0 1 2 3 4 Miles

1 0 4 8 Km

Each area outlined on this map consists of more than one kind of soil. The map is thus meant for general planning rather than a basis for decisions on the use of specific tracts.



LEGEND*

DOMINANTLY NEARLY LEVEL SOILS THAT ARE WELL DRAINED TO POORLY DRAINED; ON LOW STREAM TERRACES AND FLOOD PLAINS

1 — Tippo-Leverett-Guyton: Nearly level, somewhat poorly drained, well drained, and poorly drained, silty soils; on low stream terraces, and flood plains

2 — Cascilla-Arkabutla: Nearly level, well drained and somewhat poorly drained, silty soils; on flood plains

3 — Urbo-Arkabutla: Nearly level, somewhat poorly drained, silty soils; on flood plains

4 — Oaklimeter-Gillsburg: Nearly level, moderately well drained and somewhat poorly drained, silty soils; on flood plains

5 — Quitman-Kirkville: Nearly level, moderately well drained, loamy soils; on low stream terraces and flood plains

DOMINANTLY NEARLY LEVEL TO STEEP SOILS THAT ARE WELL DRAINED TO SOMEWHAT POORLY DRAINED; ON UPLANDS AND STREAM TERRACES

6 — Kipling-Falkner-Savannah: Nearly level to sloping soils; some are somewhat poorly drained, silty soils that are underlain by a plastic, clayey subsoil; and some are moderately well drained, loamy soils that have a fragipan; on uplands and stream terraces

7 — Smithdale-Providence: Gently sloping to steep soils; some are well drained, loamy soils; and some are moderately well drained, silty soils that have a fragipan; on uplands and stream terraces

8 — Providence Tippah: Gently sloping to moderately steep, moderately well drained, silty soils; some have a fragipan; and some are underlain by plastic, clayey material; on uplands and stream terraces

9 — Smithdale-Savannah: Gently sloping to steep, loamy soils; some are well drained; and some are moderately well drained and have a fragipan; on uplands and stream terraces

10 — Savannah-Quitman: Nearly level to sloping, moderately well driained, loamy soils; some have a fragipan; on uplands and stream terraces

*The texture term given in the descriptive heading refers to the texture of the surface layer of the major soils.

COMPILED 1985

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
MISSISSIPPI AGRICULTURAL AND FORESTRY EXPERIMENT STATION

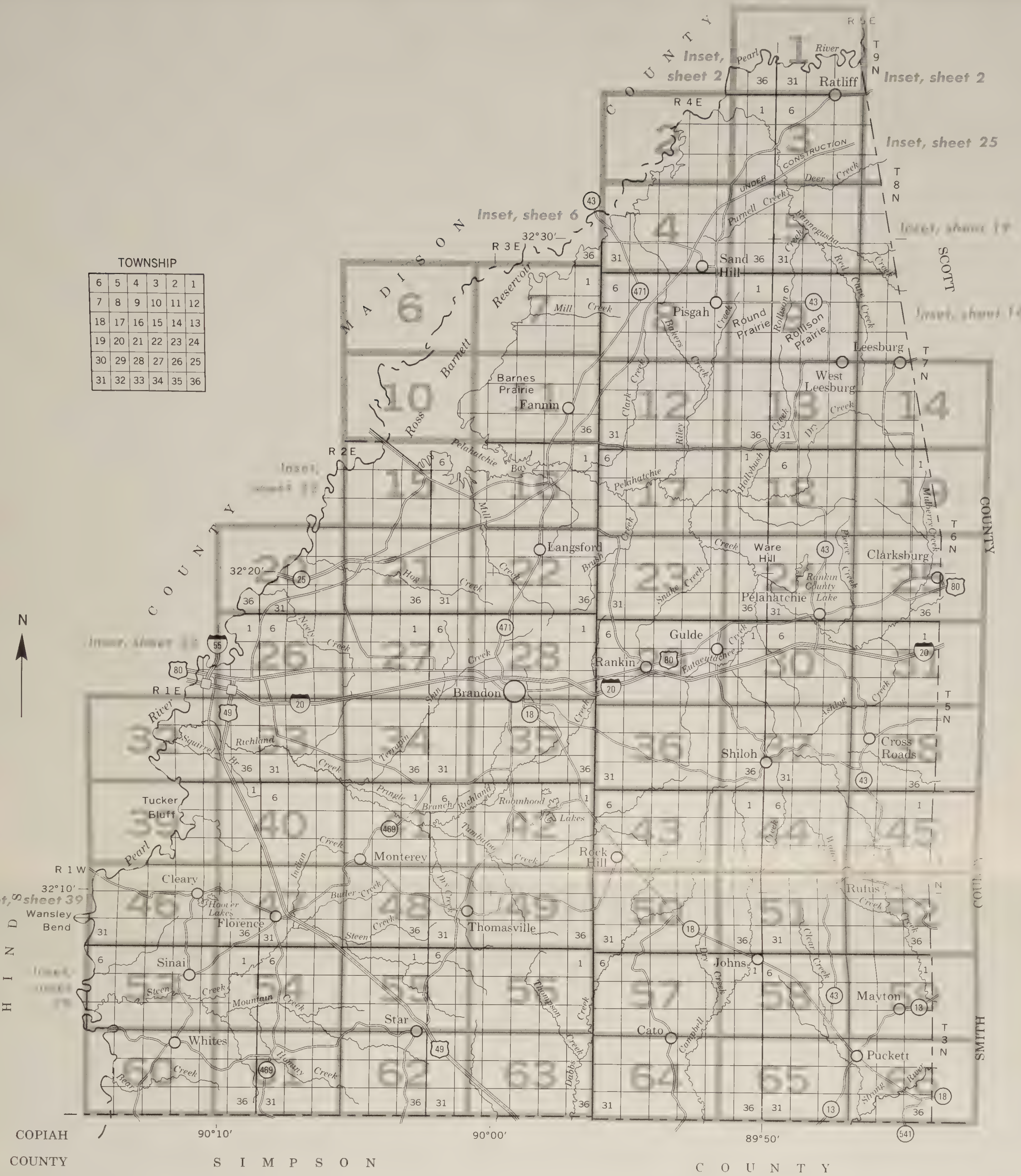
GENERAL SOIL MAP

RANKIN COUNTY, MISSISSIPPI

Scale 1:253,440

1 0 1 2 3 4 Miles

1 0 4 8 Km.



INDEX TO MAP SHEETS
RANKIN COUNTY, MISSISSIPPI

Scale 1:253,440

1 0 1 2 3 4 Miles

1 0 4 8 Km

SOIL LEGEND

Symbols consist of numbers or a combination of numbers and letters. A number consisting of one or two digits represents the kind of soil. In some units the number is followed by a capital letter, such as A, B, or C, that represents the slope. Symbols without a slope symbol are nearly level soils on flood plains or miscellaneous land types. A final number of 2 shows the soil is eroded.

Soil names followed by the superscript 1/ are order 3 mapping units. These units are mapped at a lower intensity and in larger delineations, but mapping has been controlled well enough to be interpreted for the expected use of the soils.

SYMBOL	NAME
12A	Cahaba fine sandy loam, 0 to 2 percent slopes
2	Cascilla-Arkabutla association, frequently flooded 1/
51B	Falkner silt loam, 2 to 5 percent slopes
5	Gillsburg silt loam, occasionally flooded
23	Guyton silt loam, occasionally flooded
55A	Kipling silt loam, 0 to 2 percent slopes
55B	Kipling silt loam, 2 to 5 percent slopes
55C2	Kipling silt loam, 5 to 8 percent slopes, eroded
67B	Kipling-Falkner association, undulating 1/
36B	Kipling-Urban land complex, 2 to 8 percent slopes
7	Kirkville fine sandy loam, occasionally flooded
21A	Leverett silt loam, 0 to 2 percent slopes
70F	Maben-Smithdale association, hilly 1/
3	Oaklimeter silt loam, occasionally flooded
6	Oaklimeter-Gillsburg association, frequently flooded 1/
48C2	Ora fine sandy loam, 5 to 8 percent slopes, eroded
48D2	Ora fine sandy loam, 8 to 12 percent slopes, eroded
56A	Pelahatchie silt loam, 0 to 2 percent slopes
56B	Pelahatchie silt loam, 2 to 5 percent slopes
38	Pits-Udorthents complex
41B2	Providence silt loam, 2 to 5 percent slopes, eroded
41C2	Providence silt loam, 5 to 8 percent slopes, eroded
66B	Providence-Tippah association, undulating 1/
42B	Providence-Urban land complex, 2 to 8 percent slopes
25A	Quitman loam, 0 to 2 percent slopes
25B	Quitman loam, 2 to 5 percent slopes
49B2	Savannah loam, 2 to 5 percent slopes, eroded
49C2	Savannah loam, 5 to 8 percent slopes, eroded
50B	Savannah-Quitman association, undulating 1/
68D2	Smithdale fine sandy loam, 8 to 17 percent slopes, eroded
65D	Smithdale-Providence complex, 8 to 17 percent slopes
64F	Smithdale-Providence association, hilly 1/
62F	Smithdale-Providence-Kisatchie association, hilly 1/
35B2	Tippah silt loam, 2 to 5 percent slopes, eroded
35C2	Tippah silt loam, 5 to 8 percent slopes, eroded
35D2	Tippah silt loam, 8 to 12 percent slopes, eroded
22A	Tippo silt loam, 0 to 2 percent slopes, occasionally flooded
17	Tippo-Urban land complex, 0 to 2 percent slopes
8	Urbo silty clay loam, occasionally flooded
9	Urbo-Arkabutla association, frequently flooded 1/
W	Water

SYMBOL	NAME
2	Cascilla-Arkabutla association, frequently flooded 1/
3	Oaklimeter silt loam, occasionally flooded
5	Gillsburg silt loam, occasionally flooded
6	Oaklimeter-Gillsburg association, frequently flooded 1/
7	Kirkville fine sandy loam, occasionally flooded
8	Urbo silty clay loam, occasionally flooded
9	Urbo-Arkabutla association, frequently flooded 1/
12A	Cahaba fine sandy loam, 0 to 2 percent slopes
17	Tippo-Urban land complex, 0 to 2 percent slopes
21A	Leverett silt loam, 0 to 2 percent slopes
22A	Tippo silt loam, 0 to 2 percent slopes, occasionally flooded
23	Guyton silt loam, occasionally flooded
25A	Quitman loam, 0 to 2 percent slopes
25B	Quitman loam, 2 to 5 percent slopes
35B2	Tippah silt loam, 2 to 5 percent slopes, eroded
35C2	Tippah silt loam, 5 to 8 percent slopes, eroded
35D2	Tippah silt loam, 8 to 12 percent slopes, eroded
36B	Kipling-Urban land complex, 2 to 8 percent slopes
38	Pits-Udorthents complex
41B2	Providence silt loam, 2 to 5 percent slopes, eroded
41C2	Providence silt loam, 5 to 8 percent slopes, eroded
42B	Providence-Urban land complex, 2 to 8 percent slopes
48C2	Ora fine sandy loam, 5 to 8 percent slopes, eroded
48D2	Ora fine sandy loam, 8 to 12 percent slopes, eroded
49B2	Savannah loam, 2 to 5 percent slopes, eroded
49C2	Savannah loam, 5 to 8 percent slopes, eroded
50B	Savannah-Quitman association, undulating 1/
51B	Falkner silt loam, 2 to 5 percent slopes
55A	Kipling silt loam, 0 to 2 percent slopes
55B	Kipling silt loam, 2 to 5 percent slopes
55C2	Kipling silt loam, 5 to 8 percent slopes, eroded
56A	Pelahatchie silt loam, 0 to 2 percent slopes
56B	Pelahatchie silt loam, 2 to 5 percent slopes
62F	Smithdale-Providence-Kisatchie association, hilly 1/
64F	Smithdale-Providence association, hilly 1/
65D	Smithdale-Providence complex, 8 to 17 percent slopes
66B	Providence-Tippah association, undulating 1/
67B	Kipling-Falkner association, undulating 1/
68D2	Smithdale fine sandy loam, 8 to 17 percent slopes, eroded
70F	Maben-Smithdale association, hilly 1/
W	Water

CONVENTIONAL AND SPECIAL SYMBOLS LEGEND

CULTURAL FEATURES

BOUNDARIES

- National, state or province
- County or parish
- Minor civil division
- Reservation (national forest or park, state forest or park, and large airport)
- Land grant
- Limit of soil survey (label)
- Field sheet matchline & neatline

AD HOC BOUNDARY (label) — Hedley Airstrip

- Small airport, airfield, park, oilfield, cemetery, or flood pool — FLOOD POOL LINE

STATE COORDINATE TICK

LAND DIVISION CORNERS (sections and land grants)

ROADS

- Divided (median shown if scale permits)
- Other roads
- Trail

ROAD EMBLEM & DESIGNATIONS

- Interstate — 21
- Federal — 173
- State — 28
- County, farm or ranch — 1283

RAILROAD

POWER TRANSMISSION LINE (normally not shown)

PIPE LINE (normally not shown)

FENCE (normally not shown)

LEVEES

- Without road
- With road
- With railroad

DAMS

- Large (to scale)
- Medium or small — water, w

PITS

- Gravel pit
- Mine or quarry

MISCELLANEOUS CULTURAL FEATURES

- Farmstead, house (omit in urban areas)
- Church
- School
- Indian mound (label) — Indian Mound
- Located object (label) — Tower
- Tank (label) — Gas
- Wells, oil or gas
- Windmill
- Kitchen midden

WATER FEATURES

DRAINAGE

- Perennial, double line
- Perennial, single line
- Intermittent
- Drainage end
- Canals or ditches
  - Double-line (label) — CANAL
  - Drainage and/or irrigation

LAKES, PONDS AND RESERVOIRS

- Perennial — water, w
- Intermittent — int, i

MISCELLANEOUS WATER FEATURES

- Marsh or swamp
- Spring
- Well, artesian
- Well, irrigation
- Wet spot

SPECIAL SYMBOLS FOR SOIL SURVEY

SOIL DELINEATIONS AND SYMBOLS — 5, 70F

ESCARPMENTS

- Bedrock (points down slope)
- Other than bedrock (points down slope)

SHORT STEEP SLOPE

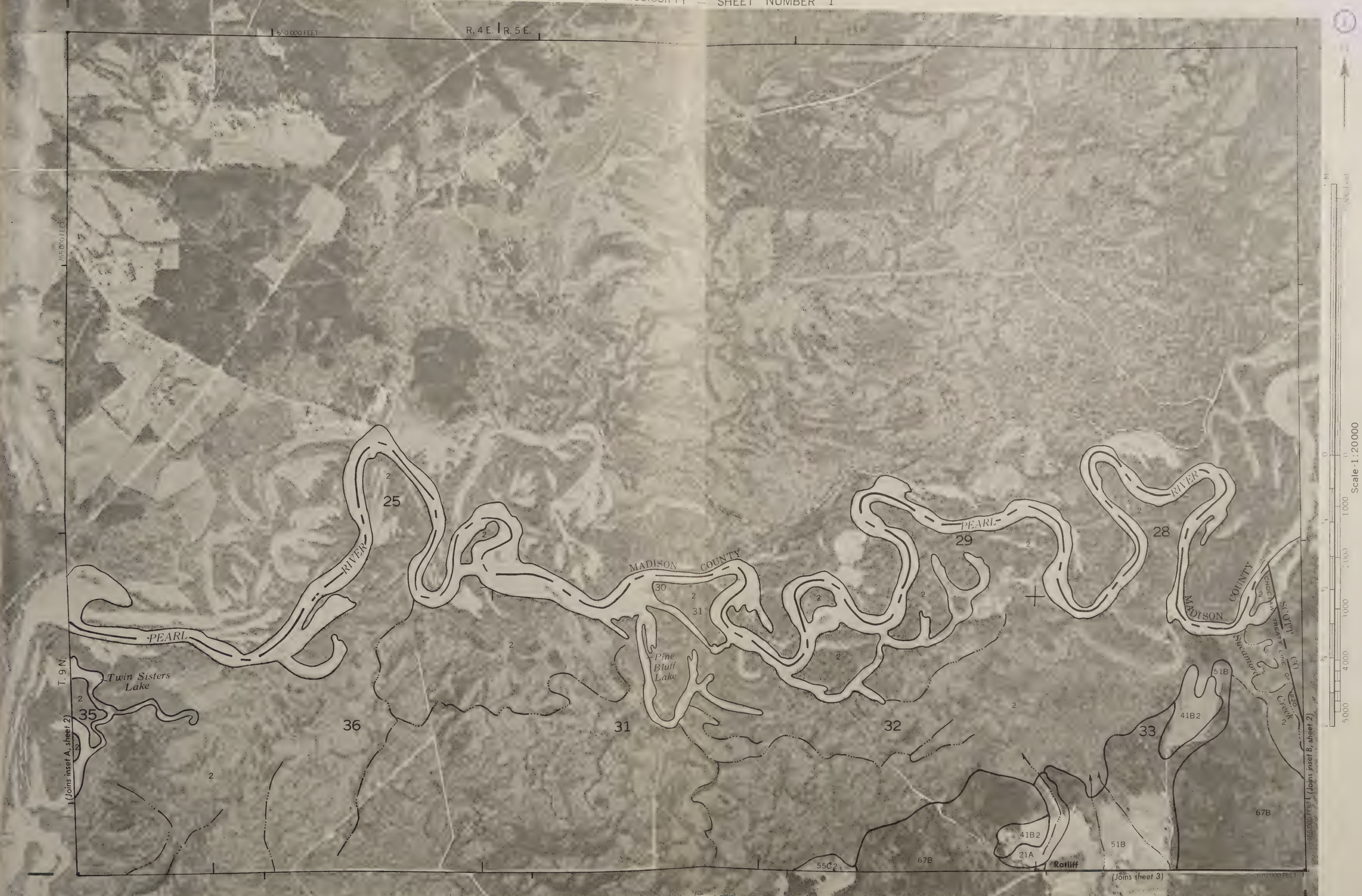
GULLY

DEPRESSION OR SINK

SOIL SAMPLE SITE (normally not shown) — S

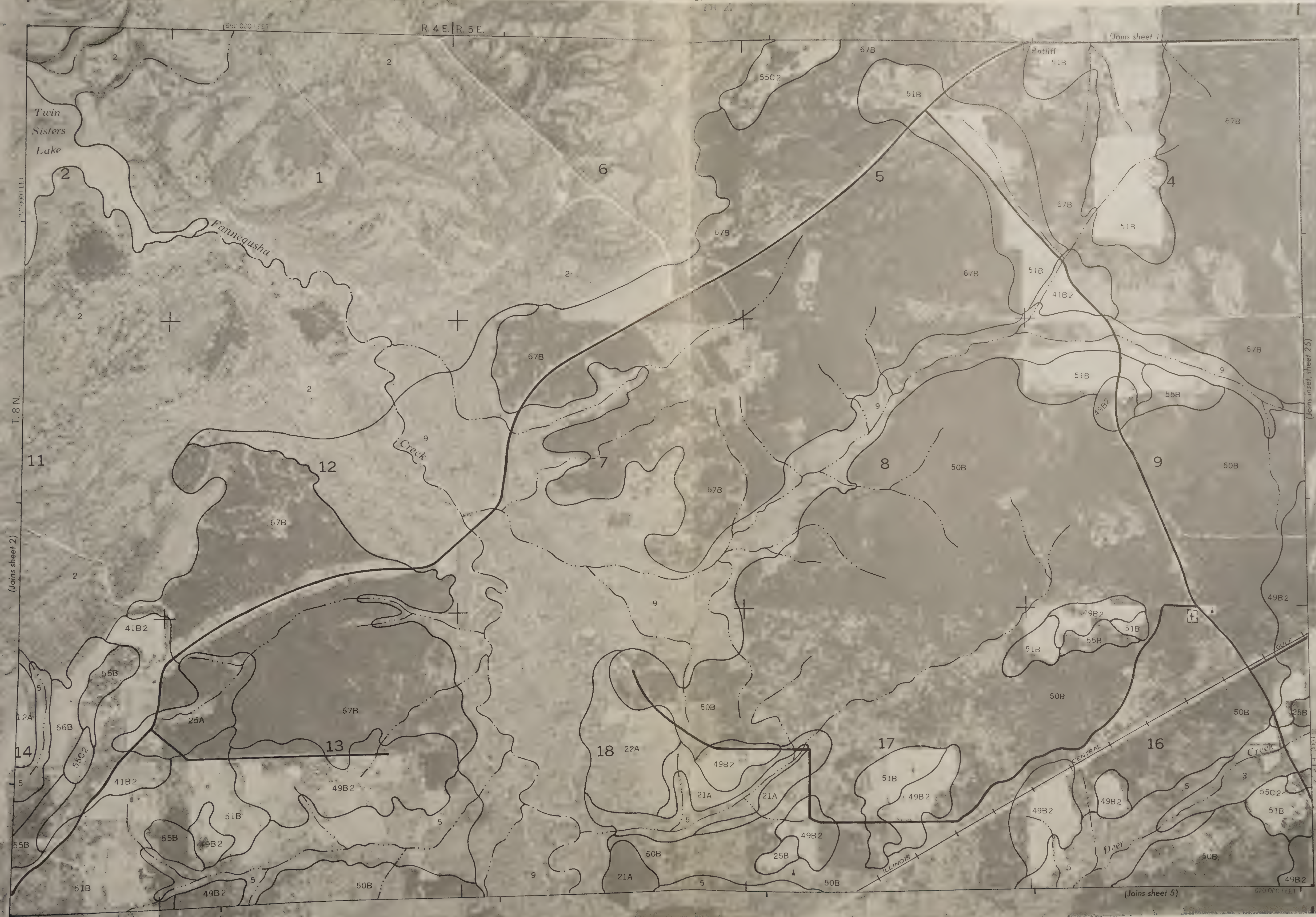
MISCELLANEOUS

- Blowout
- Clay spot
- Gravelly spot
- Gumbo, slick or scabby spot (sodic)
- Dumps and other similar non soil areas
- Prominent hill or peak
- Rock outcrop (includes sandstone and shale)
- Saline spot
- Sandy spot
- Severely eroded spot
- Slide or slip (tips point upslope)
- Stony spot, very stony spot


R. 4 E. | R. 5 E.
T. 9 N.
(Joins inset A, sheet 2)
(Joins inset B, sheet 2)
(Joins sheet 3)
PEARL RIVER
MADISON COUNTY
SCOTT CO
CHOCTAW TREATY LINE OF 1820
Twin Sisters Lake
Pine Bluff Lake
Sycamore Creek
Ratliff
25
28
29
30
31
32
33
35
36
2
21A
41B2
51B
55C2
67B
Scale 1:20000


2
N
1 Mile
5000 Feet
Scale 1:20000
INSET A
R. 4 E.
MADISON COUNTY
PEARL RIVER
Twin Sisters Lake
35
T. 9 N.
(Joins sheet 1)
(Joins sh 2)
1000 AND 4000-FOOT GRID TICKS
INSET B
R. 5 E.
SCOTT COUNTY
CHOCTAW TREATY LINE
34
67B
(Joins sheet 1)
(Joins inset, sheet 25)
1000 AND 2000-FOOT GRID TICKS
(Joins inset A)
(Joins sheet 3)
(Joins sheet 4)
R. 4 E.
740 000 FEET
McDowell Pocket
Tupelo Gum Slough
Pete Lake
Lake Slough
Spring
ROSS BARNETT RESERVOIR
GAS
3
9
10
11
14
15
16
17
12A
25A
49B2
51B
55B
56B
67B

RANKIN COUNTY, MISSISSIPPI SHEET NUMBER 3



Scale 1:20000
1 Mile
5000 Feet
0 1000 2000 3000 4000 5000


1 ¾ ½ ¼ 0 1 Mile
5000 4000 3000 2000 1000 0 5000 Feet
Scale 1:20000
N
4
(Joins sheet 7)
(Joins inset, sheet 6)
725 000 FEET
(Joins sheet 8)
(Joins sheet 2)
(Joins sheet 5)
GAS
MADISON COUNTY
ROSS BARNETT RESERVOIR
New Goshen Springs
Carter Creek
Cane Creek
ILLINOIS CENTRAL GULF
Kach
Sand Hill
Pumell Creek
20
21
22
23
26
27
28
29
30
31
32
33
34
35
25A
55B
56B
49C2
42B
36B
38
67B
8
51B
55C2
41B2
12A
68D2
56A
49B2
2


(Joins sheet 3)
(Joins sheet 4)
(Joins sheet 9)
(Joins inset, sheet 19)
650 000 FEET
R. 4 E. | R. 5 E.
T. 8 N.
ILLINOIS
CENTRAL
GULF
Purnell
Creek
Deer
Creek
Pannequsha
Rollison
Creek
Creek
Red
Cane
Creek
water
w
19
20
21
23
24
25
26
28
29
30
31
32
33
35
36
50B
49B2
51B
67B
55B
56B
35B2
35C2
41B2
21A
25A
55C2
9
8
5
3
N
Scale 1:20000
1 Mile
5000 Feet
5000 4000 3000 2000 1000 0


6
N
1 Mile
5000 Feet
Scale 1:20000
(Joins sheet 7)
(Joins sheet 4)
(Joins sheet 10)
T. 8 N.
T. 7 N.
R. 3 E.
R. 2 E. | R. 3 E.
725 000 FEET
730 000 FEET
720 000 FEET
610 000 FEET
580 000 FEET
ROSS BARNETT RESERVOIR
MADISON COUNTY
43
51B
34
35
36
25A
67B
55B
65B
7


(Joins inset, sheet 6)
(Joins sheet 4)
(Joins sheet 6)
(Joins sheet 11)
T. 7 N.
R. 3 E.
MADISON COUNTY
ROSS
BARNETT
RESERVOIR
Mill Creek
ILLINOIS CENTRAL GULF
GAS
51B
3
2
1
67B
55B
56A
56B
10
11
12
13
14
15
16
9
25A
49B2
41B2
49C2
64F
7
5
Scale 1:20000
1 Mile
5000 Feet
N
7

RANKIN COUNTY, MISSISSIPPI — SHEET NUMBER 8

RANKIN COUNTY, MISSISSIPPI SHEET NUMBER 9


10
N
Scale 1:20000
1 Mile
5000 Feet
R. 2 E. | R. 3 E.
(Joins sheet 6)
595 000 FEET
ROSS
BARNETT
RESERVOIR
MADISON
COUNTY
HINDS CO
(Joins sheet 15)
(Joins sheet 11)
680 000 FEET
T 7 N
51B
29
30
41C2
41B2
32
ILLINOIS
CENTRAL
GULF
GAS

ROSS BARNETT RESERVOIR
T. 7 N.
Barnes Prairie
New Fannin
Fannin
Spring Branch
ILLINOIS CENTRAL GULF GAS
water
(Joins sheet 10)
(Joins sheet 7)
(Joins sheet 8)
(Joins sheet 12)
(Joins sheet 16)
20
21
22
23
24
25
26
27
28
29
32
33
34
35
36
Scale 1:20000
5000 Feet

RANKIN COUNTY, MISSISSIPPI — SHEET NUMBER 12
12
N
1 Mile
5000 Feet
Scale 1:20000
(Joins sheet 16)
(Joins sheet 11)
(Joins sheet 17)
(Joins sheet 8)
(Joins sheet 13)
T. 7 N.
GAS
Clark
Creek
Riley
Creek
Creek
19
20
21
22
23
26
27
28
29
30
31
32
33
34
35

RANKIN COUNTY, MISSISSIPPI — SHEET NUMBER 13

1 Mile
5000 Feet
1 ¾ ½ ¼ 0
5000 4000 3000 2000 1000 0
Scale 1:20000

13


14
N
1 Mile
5 000 Feet
Scale 1:20000
0
1000
2000
3000
4000
5000
(Joins lower right)
(Joins sheet 13)
(Joins sheet 19)
(Joins inset, sheet 19)
(Joins sheet 9)
(Joins upper left)
R. 5 E.
T. 7 N.
Leesburg
CHOCTAW TREATY LINE OF 1820
SCOTT COUNTY
Dry Creek
Mill Branch
Cane Creek
Red
Cane Creek
Creek
22
23
25
26
27
34
35
36
2
3
10
11
14
15
481
680 000 FEET
675 000 FEET
710 000 FEET


MADISON CO
R. 2 E. | R. 3 E.
(Joins sheet 10)
ROSS BARNETT RESERVOIR
HINDS COUNTY
PEARL RIVER
Pelahatchie Creek
T. 6 N.
(Joins inset, sheet 32)
(Joins sheet 16)
(Joins sheet 21)
ILLINOIS CENTRAL
GULF
GAS
Scale 1:20000
5000 Feet
1 Mi
1000
2000
3000
4000
5000

16

1 ¾ ½ ¼ 0 1 Mile
5000 4000 3000 2000 1000 0 5000 Feet
Scale 1:20000

N

RANKIN COUNTY, MISSISSIPPI — SHEET NUMBER 16

RANKIN COUNTY, MISSISS

HEET NUMBER 17

Scale 1:20000

5000 Feet


N
1 Mile
5000 Feet
0
1000
2000
3000
4000
5000
Scale 1:20000
(Joins sheet 13)
R. 4 E. | R. 5 E.
(Joins sheet 17)
(Joins sheet 19)
(Joins sheet 24)
T. 6 N.
650 000 FEET
Clear Creek
Hollybush
Ward Branch
Creek
Pierce Creek
water

RANKIN COUNTY, MISSISSIPPI SHEET NUMBER 19


N
Scale 1:20000
1 Mile
5000 Feet
4000 AND 5000 FOOT GRID TICKS
(Joins sheet 32)
(Joins sheet 26)
(Joins inset, sheet 32)
(Joins sheet 21)
R. 1 E.
R. 1 E. | R. 2 E.
R. 2 E.
T. 5 N.
T. 6 N.
PEARL RIVER
HINDS COUNTY
PEARL
RICHLAND
Flowood
ILLINOIS CENTRAL GULF
ICG
GAS
Conway Slough
Creosote Slough
Prairie Branch
Harris Lake
Hog Creek

RANKIN COUNTY, MISSISSI... SHEET NUMBER 21

(22)


N
1 Mile
5000 Feet
Scale 1:20000
(Joins sheet 16)
(Joins sheet 21)
(Joins sheet 28)
Mill Creek
Langford
T. 6 N.
20
21
22
23
24
25
26
27
28
29
32
33
34
35
36

RANKIN COUNTY, MISSISSIPPI — SHEET NUMBER 23

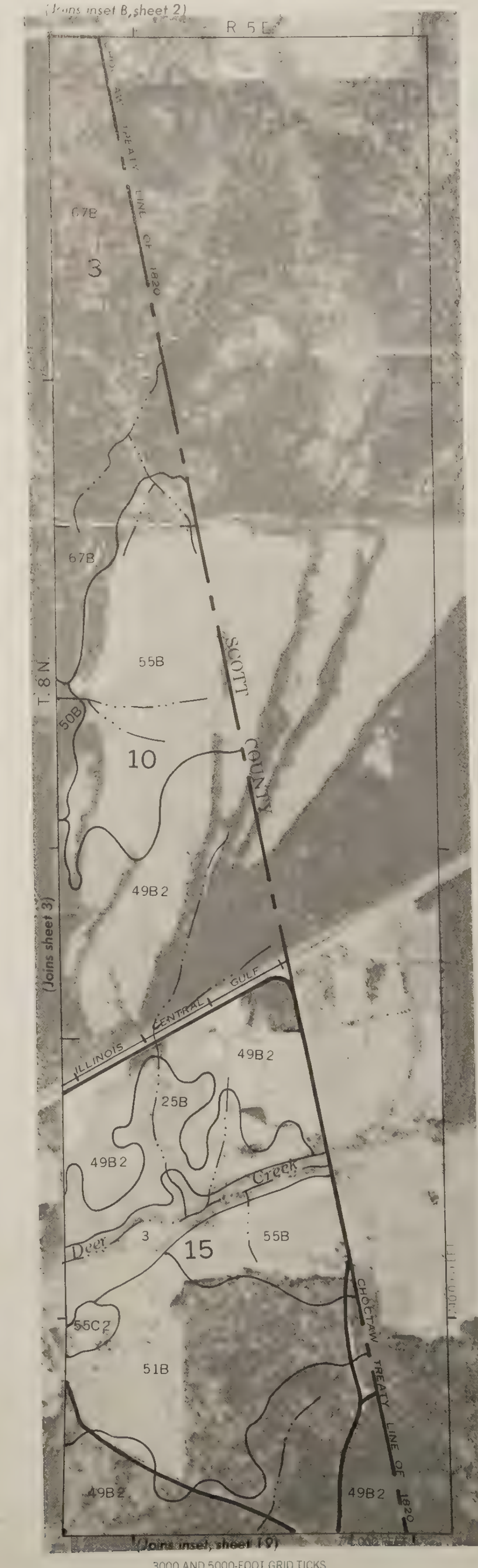
24

N

Scale 1:20000

1 Mile

5000 Feet



N

Scale 1:20000

1 Mile

5000 Feet

Scale 1:20000
1 Mile
5000 Feet
(Joins inset, sheet 20)
(Joins sheet 20)
(Joins sheet 33)
(Joins sheet 27)
R. 1 E. | R. 2 E.
T. 5 N.
RICHLAND
PEARL
Flowood
PEARL RIVER
HINDS COUNTY
Crenshaw Slough
Neely Creek
Conway Slough
Red Hill
SEWAGE LAGOON
ILLINOIS CENTRAL
GULF
GAS
water

Scale 1:20000

1 ¾ ½ ¼ 0 1 Mile

5000 4000 3000 2000 1000 0 5000 Feet

Scale 1:20000

N (28)

RANKIN COUNTY, MISSISSIPPI — SHEET NUMBER 28

N

Scale 1:20000

1 Mile 0 5000 Feet

1000 2000 3000 4000 5000

1 ¾ ½ ¼ 0 1 Mile
5000 4000 3000 2000 1000 0 5000 Feet
Scale 1:20000

30

RANKIN COUNTY, MISSISSIPPI — SHEET NUMBER 30

Scale 1:20000


N
1 Mile
5000 Feet
Scale 1:20000
(Joins sheet 15)
(Joins sheet 20)
T. 6 N.
R. 2 E.
PEARL RIVER
HINDS COUNTY
SEWAGE LAGOON
(Joins inset, sheet 20)
R. 1 E.
(Joins sheet 33)
(Joins sheet 39)
T. 5 N.
Richland Creek
Squirrel Branch
ILLINOIS CENTRAL GULF
GAS
RICHLAND

N

1 Mile · 3/4 · 1/2 · 1/4 · 0

5000 Feet · 0 · 1000 · 2000 · 3000 · 4000 · 5000

Scale 1:20000

1 ¾ ½ ¼ 0 1 Mile
5000 4000 3000 2000 1000 0 5000 Feet
Scale 1:20000

N

34

RANKIN COUNTY, MISSISSIPPI — SHEET NUMBER 34


(Joins sheet 34)
(Joins sheet 28)
(Joins sheet 36)
(Joins sheet 29)
(Joins sheet 42)
T. 5 N.
R. 3 E.
600 000 FEET
640 000 FEET
630 000 FEET
BRANDON
(County seat)
Richland
Creek
N
Scale 1:20000
1 Mile
5000 Feet

1 ¾ ½ ¼ 0 1 Mile
5000 4000 3000 2000 1000 0 5000 Feet
Scale 1:20000

N

36

RANKIN COUNTY, MISSISSIPPI — SHEET NUMBER 36

RANKIN COUNTY, MISSISSIPPI — SHEET NUMBER 37

38
1 ¾ ½ ¼ 0 1 Mile
5000 4000 3000 2000 1000 0 5000 Feet
Scale 1:20000
N
(Joins sheet 37)
(Joins sheet 45)
(Joins sheet 31)
Cross Roads
Ashley Creek
Raspberry Creek
SCOTT COUNTY
SCOTT CO
SMITH CO
T. 5 N.
34
27
22
35
26
23
36
25
24
13
43
41B2
41C2
68D2
35B2
35C2
49B2
49C2
48C2
70F
25A
w
RANKIN COUNTY, MISS — SHEET NUMBER 38


INSET A
(Joins lower right)
R. 1 W.
T. 3 N.
(Joins sheet 53)
(Joins sheet 60)
INSET B
R. 1 W.
T. 4 N.
Wansley Bend
(Joins sheet 46)
(Joins upper left)
2000 AND 5000-FOOT GRID TICKS
T. 4 N.
R. 1 E.
(Joins sheet 32)
(Joins sheet 40)
(Joins sheet 46)
Richmond Lake
RICHLAND
Howard Creek
Tucker Bluff
PEARL RIVER
HINDS COUNTY
39
N
1 Mile
5000 Feet
Scale 1:20000

1 ¾ ½ ¼ 0 1 Mile

5000 4000 3000 2000 1000 0 5000 Feet

Scale 1:20000

N

RANKIN COUNTY, MISSISSIPPI — SHEET NUMBER 40

RANKIN COUNTY, MISSISSIPPI — SHEET NUMBER 41

RANKIN COUNTY, MISSISSIPPI — SHEET NUMBER 42


43
N
(Joins sheet 36)
(Joins sheet 44)
(Joins sheet 50)
(Joins sheet 49)
(Joins sheet 42)
T 4 N.
625 000 FEET
Tumbaloo
Creek
Dabbs
Creek
Rock Hill
water
GAS
Scale 1:20000
5000 Feet
1 Mile
0
1000
2000
3000
4000
5000


(44)
N
Scale 1:20000
1 Mile
5000 Feet
(Joins sheet 37)
R. 4 E. | R. 5 E.
(Joins sheet 43)
(Joins sheet 45)
(Joins sheet 51)
T. 4 N.
Campbell's Creek
Walters Creek
Purvis Creek
50B
64F
68D2
49C2
49B2
25A
25B
70F
65D
35C2
35D2
48D2
38


(Joins sheet 38)
(Joins sheet 44)
(Joins sheet 52)
SCOTT COUNTY
SMITH COUNTY
SMITH COUNTY
T. 4 N.
Purvis Creek
Diamond D Lake
Rufus
43
1 Mile
5000 Feet
Scale 1:20000
N

RANKIN COUNTY, MISSISSIPPI — SHEET NUMBER 46
46
N
1 Mile
5000 Feet
Scale 1:20000
(Joins inset B, sh 39)
(Joins sheet 53)
(Joins sheet 47)
R.1 E.
T. 4 N.
HINDS COUNTY
PEARL RIVER
Wansley Bend
Branch
Holcomb Branch
French Branch
Frenchs Store
Cleary
Hoover Lake and Park
Hoover Lakes
19
20
21
22
23
26
27
28
29
30
31
32
33
34
35

1 Mile
5000 Feet
5000 4000 3000 2000 1000 0
Scale 1:20000

N

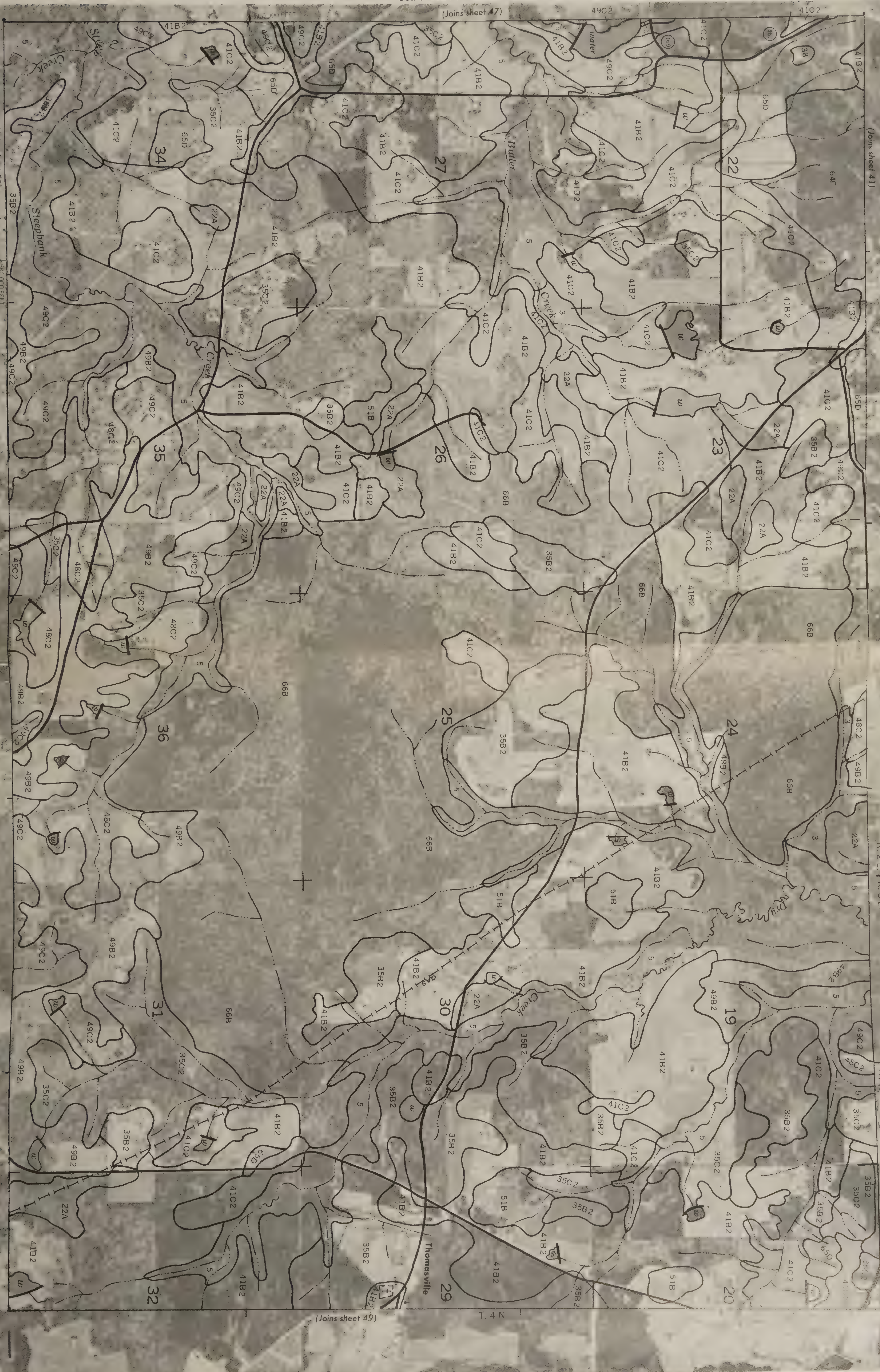
48

Scale 1:20000

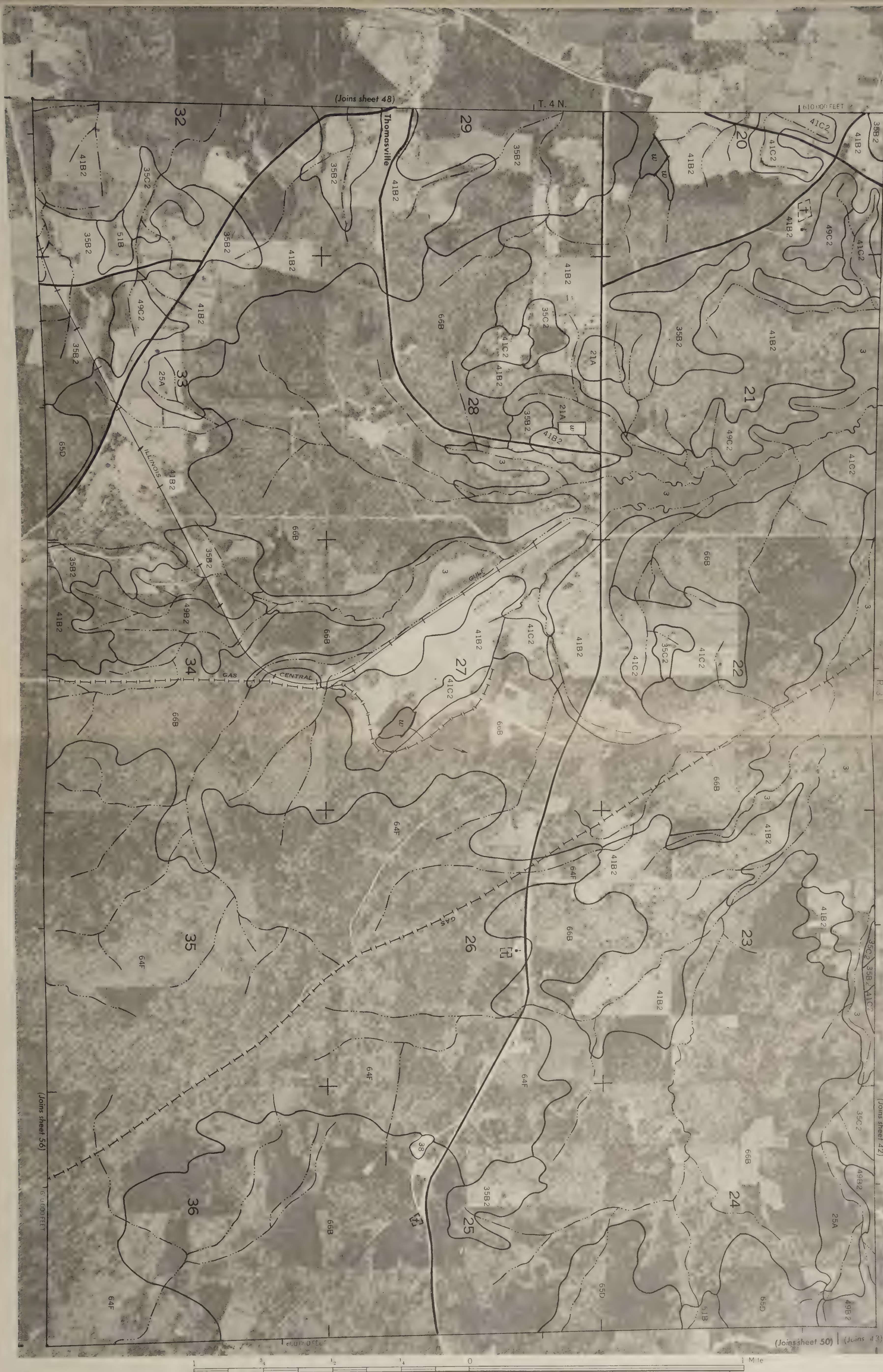
1 ¾ ½ ¼ 0 1 Mile

5000 4000 3000 2000 1000 0 5000 Feet

N



RANKIN COUNTY, M IPPI — SHEET NUMBER 48



RANKIN COUNTY, MISSISSIPPI — SHEET NUMBER 49

1 ¾ ½ ¼ 0 1 Mile

5000 4000 3000 2000 1000 0 5000 Feet

Scale 1:20000

N.

49

1 ¾ ½ ¼ 0 1 Mile

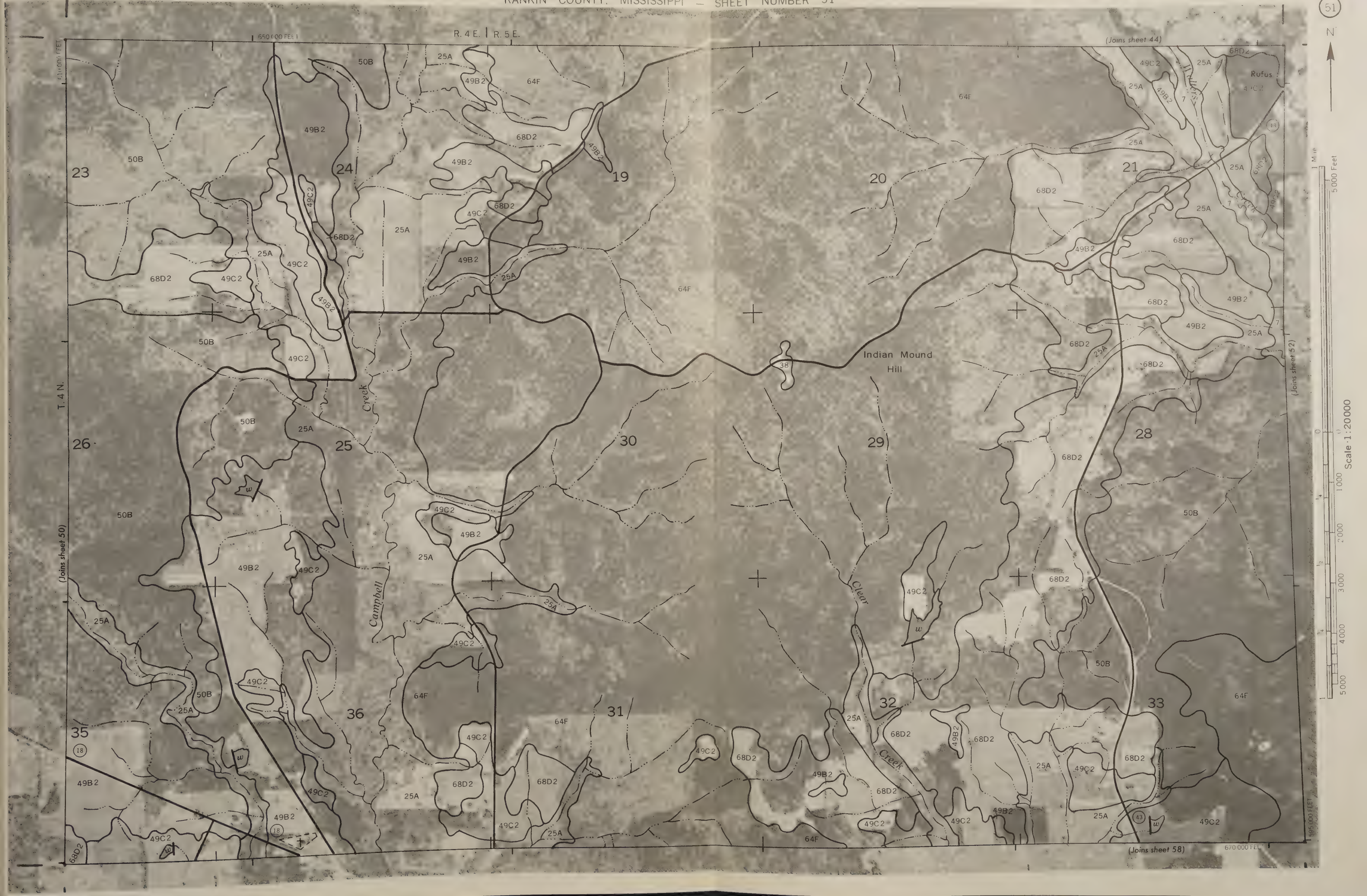
5000 4000 3000 2000 1000 0 5000 Feet

Scale 1:20000

N

RANKIN COUNTY, MISSISSIPPI — SHEET NUMBER 50

RANKIN COUNTY, MISSISSIPPI — SHEET NUMBER 51



1 ¾ ½ ¼ 0 1 Mile
5 000 4 000 3 000 2 000 1 000 0 5 000 Feet
Scale 1:20 000

N

52

RANKIN COUNTY, MISSISSIPPI — SHEET NUMBER 52


(Joins sheet 46)
(Joins inset A, sheet 39)
(Joins sheet 54)
(Joins sheet 60)
T. 3 N.
HINDS COUNTY
PEARL RIVER
Holcomb Branch
French Branch
Steen Creek
Mountain Creek
Sinai
water
GAS
41C2
41B2
65D
25A
22A
66B
25B
49C2
23
N
1 Mile
5000 Feet
1000 2000 3000 4000 5000
Scale 1:20000

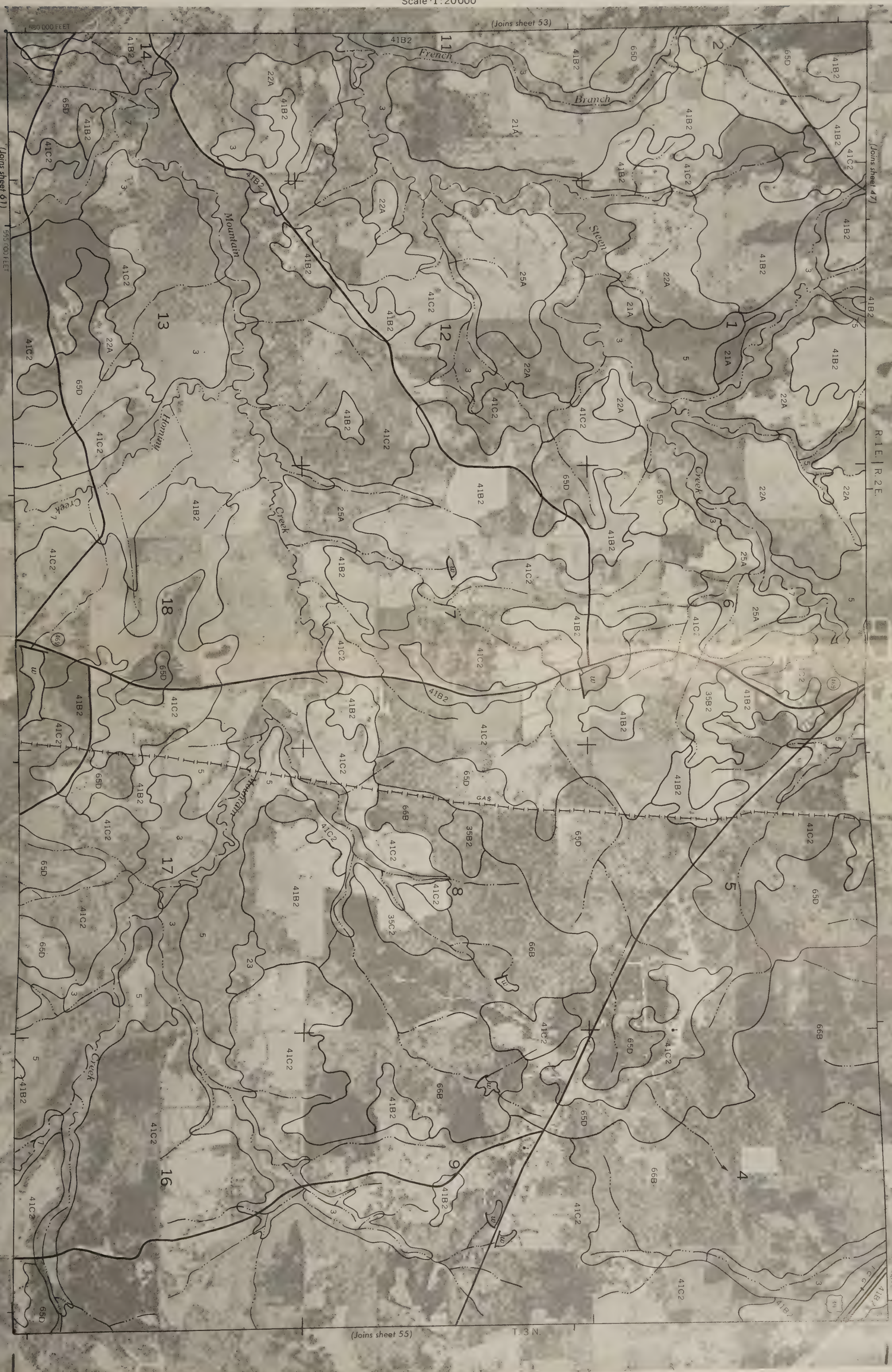
1 ¾ ½ ¼ 0 1 Mile

5000 4000 3000 2000 1000 0 5000 Feet

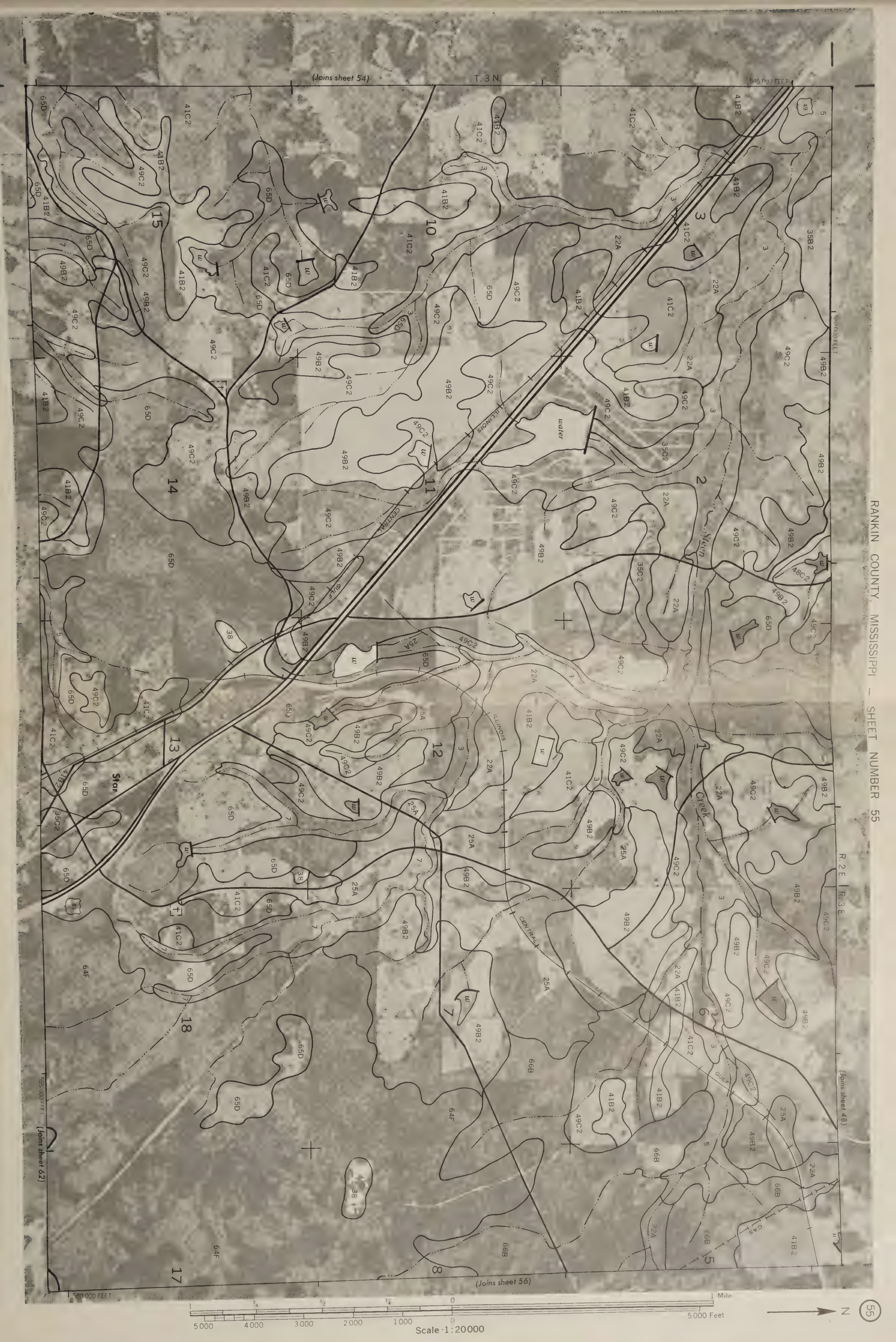
Scale 1:20000

N

(54)



RANKIN COUNTY, MISSISSIPPI — SHEET NUMBER 54


RANKIN COUNTY, MISSISSIPPI — SHEET NUMBER 55
(Joins sheet 54)
(Joins sheet 56)
(Joins sheet 48)
(Joins sheet 62)
T. 3 N.
R. 2 E. | R. 3 E.
Star
Steen Creek
ILLINOIS CENTRAL GULF
Scale 1:20000
Mile
5 000 Feet
N
55

1 ¾ ½ ¼ 0 1 Mile

5000 4000 3000 2000 1000 0 5000 Feet

Scale 1:20000

N

RANKIN COUNTY, MISSISSIPPI — SHEET NUMBER 56


(Joins sheet 50)
(Joins sheet 58)
(Joins sheet 64)
(Joins 63) (Joins sheet 56)
T. 3 N.
Dubbs Creek
Dry Creek
Campbell's Creek
Cato
GAS
N
Scale 1:20000
1 Mile
5000 Feet
0
1000
2000
3000
4000
5000


N
1 Mile
5000 Feet
Scale 1:20000
0 1000 2000 3000 4000 5000
(Joins sheet 51)
(Joins sheet 57)
(Joins sheet 59)
(Joins sheet 65)
R. 4 E. R. 5 E.
T. 3 N.
Johns
Puckett
Campbell's Creek
Brushy Creek
Clear Creek
water


(Joins sheet 52)
R. 5 E.
675 000 FEET
T. 3 N.
(Joins sheet 58)
(Joins sheet 66)
690 000 FEET
SMITH COUNTY
Mayton
Purvis Creek
N
1 Mile
5000 Feet
Scale 1:20000

RANKIN COUNTY, MISSISSIPPI — SHEET NUMBER 60

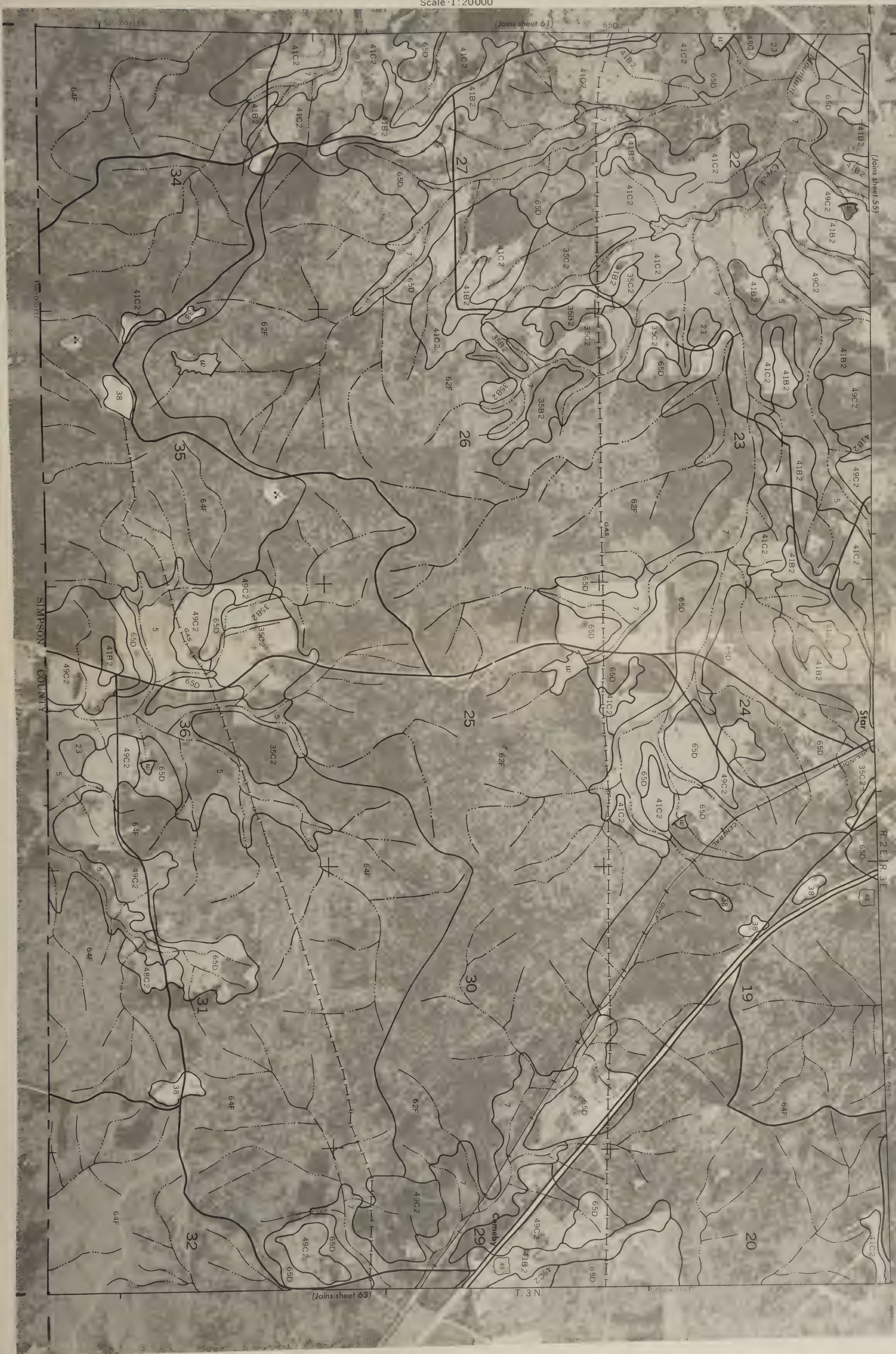
RANKIN COUNTY, MISSISSIPPI — SHEET NUMBER 61

61

1 ¾ ½ ¼ 0 1 Mile
5 000 4 000 3 000 2 000 1 000 0 5 000 Feet
Scale 1:20000

N

62



RANKIN COUNTY, MISSISSIPPI — SHEET NUMBER 62

RANKIN COUNTY, MISSISSIPPI SHEET NUMBER 63

1 Mile
5000 Feet
5000 4000 3000 2000 1000 0
Scale 1:20000
N

63

64
N
1 Mile
5000 Feet
Scale 1:20000
(Joins sheet 63)
(Joins sheet 57)
(Joins sheet 65)
RANKIN COUNTY, MISSISSIPPI — SHEET NUMBER 64
SIMPSON COUNTY
T. 3 N.
R. 4 E.
565 000 FEET
Tower
GAS
water
Campbell's Creek
Dry Creek
Creek
Cato
19
20
21
22
23
26
27
28
29
30
31
32
33
34
35
25A
25B
35B2
35C2
38
41C2
49B2
49C2
50B
64F
68D2


(Joins sheet 58)
(Joins sheet 64)
(Joins sheet 66)
R 4 E. | R 5 E.
T 3 N.
SIMPSON COUNTY
Puckett
Wildcat
Creek
Branch
N
1 Mile
5000 Feet
Scale 1:20000
65

This map is compiled on 1976 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.